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MONTHLY REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR

JUNE, 1874.



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MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Statistical Division, June 18, 1874.

SIR: I present herewith a digest of the returns of the regular corps of statistical correspondents for June; a brief view of the proceedings of the National Agricultural Congress; some statistics of the German Empire; and other current official matter.

J. R. DODGE,
Statistician.

Hon. FREDERICK WATTS,
Commissioner.

DIGEST OF THE JUNE RETURNS.

WHEAT.

The breadth of wheat, both winter and spring, has been increased. The indicated aggregate increase is 107 per cent. Combining fall and spring sown, the area in comparison with last year in each State is thus indicated: Maine, 90; New Hampshire, 92; Vermont, 95; Massachusetts, 89; Connecticut, 100; New York, 100; New Jersey, 99; Pennsylvania, 103; Delaware, 101; Maryland, 103; Virginia, 103; North Carolina, 106; South Carolina, 108; Georgia, 115; Alabama, 107; Mississippi, 150; Texas, 135; Arkansas, 149; Tennessee, 120; West Virginia, 102; Kentucky, 109; Ohio, 103; Michigan, 103; Indiana, 106; Illinois, 109; Wisconsin, 103; Minnesota, 100; Iowa, 110; Missouri, 111; Kansas, 123; Nebraska, 116; California, 110; Oregon, 115.

The reduction of acreage in Vermont and elsewhere in New England is owing to the lingering of winter in the lap of spring, which caused a portion of the land intended for wheat to be planted in other crops. The increase of area in the South is due to a realization of the necessity of growing home-supplies on the part of a few planters. The remunerative prices of the past year have had a stimulating effect on grain-growing in the West.

The condition of wheat is better than the average of a series of years. In Vermont, Massachusetts, and Connecticut, spring-wheat looks well, slightly better than in the remaining New England States. In New York, the depreciation in condition is 10 per cent. The effect of frost in clay soils could not be utterly overcome by subsequent favorable weather. In Seneca County, late-sown wheat was nearly ruined and has been largely plowed up or intersown with other grain. Recent rains are improving the prospect in this State. In the remaining Middle States, and in all the Southern States, except Mississippi and Texas, the condition of wheat is represented by figures ranging from 104 in South

Carolina to 119 in Tennessee. These figures would be still higher but for occasional injury from floods or too heavy rains in April, and rust in May and June. In some instances rust has attacked the stalk and destroyed the heads, but generally is confined to the leaves. In North Carolina, depredations of the chinch-bug are reported. While the average in Texas is not high, the quantity of wheat produced will be largely in excess of former supplies, and in some counties the yield informally reported is very high, 20 bushels per acre being the estimate for Dallas, and 20 to 25 for Hood. In one instance, in Prairie County, Arkansas, a field yielding 40 bushels per acre in prairie-sod is reported. The crop will be heavy in Tennessee. The varieties sent from the Department have generally, though not in every instance, given great satisfaction; our correspondent in Sullivan County, Tennessee, reports 59 stalks from one kernel of Fultz wheat.

In West Virginia and in all the Northwestern and Pacific States an increased acreage is reported. In West Virginia wheat, in some quarters, stands drought better than any other crop. Several counties anticipate the finest crop for years. In Russell, Ky., rust has spoiled a splended crop; in some other counties drought has prevented the filling of the grain, but the general condition is 25 per cent. above average. North of the Ohio River the crop was considerably winter-killed. The chinch-bug is reported as injurious in some counties of Illinois and Wisconsin. The prospect is below average in all these States except Illinois, which reports winter-wheat 117 and spring-wheat 108. In some counties of Minnesota there is a tendency to introduce winter-wheat. The grasshopper is at work in Steele and Faribault Counties. In Iowa, Missouri, and Kansas the chinch-bug is threatening extensive injuries; otherwise the crop is generally very promising. The dry weather in some localities has greatly shortened the straw, but the heads were filling rapidly. In Wilson, Kansas, chinches were more destructive on upland crops. The Tappahannock and Fultz wheats are generally well reported. The Touzelle succeeds in some cases; in others it is a complete failure. Dry weather in the fall reduced a superior prospect of winter-wheat in Nebraska to about average; spring-wheat is reported at 109. On the Pacific coast there has been a considerable increase in acreage; the condition is above average. In Del Norte, California, the Fultz, Tappahannock, and White Surrey varieties have lately been tried, with excellent results, the Tappahannock being the special favorite. In some localities excessive rains have injured the crops, but the conditions of growth are generally favorable.

RYE.

In most of the States the acreage in winter-rye is fully equal to or surpasses that of last year. The comparative aggregate area is 101. A remarkable increase, 50 per cent., is found in Nebraska, and 20 per cent. in Vermont. The States reporting a decrease are Rhode Island, New York, Pennsylvania, Virginia, South Carolina, Tennessee, West Virginia, Kentucky, Ohio, Indiana, Illinois, Wisconsin, Minnesota, and Missouri. The condition of the crop is below average in all the New England States except Connecticut, and also in New York, Pennsylvania, Virginia, South Carolina, Florida, Mississippi, Texas, Ohio, Michigan, Indiana, and Wisconsin. The maximum, 115, is in Nebraska; the minimum, 80, in Vermont. In the Northwest the crop, in several counties, was greatly injured by the chinch-bug. In some parts of Pennsylvania the yield is annually lessening. In some counties of Virginia, on the other hand, the prospect is better than for years.

OATS.

The breadth of oats is increased 2 per cent. The States reporting the same area as last year are—Maine, New Hampshire, Rhode Island, Delaware, Tennessee, West Virginia, Illinois, Nebraska, Oregon. Those showing an increase—Alabama, Iowa, 1 per cent.; Florida, 2; Wisconsin, 3; Minnesota, 4; Vermont, Ohio, Michigan, 5; North Carolina, 106; Indiana, 107; Louisiana, 110; Arkansas, 114; South Carolina, 116; Texas, 117; Georgia, 125. Those indicating decrease—California, 5 per cent.; Massachusetts, 4; Connecticut, New York, 3; New Jersey, Missouri, 2; Maryland, Virginia, Kentucky, 1.

The condition of the crop is slightly below average. The only States not showing inferior averages are Massachusetts, 100; California, 102; Vermont, 104; North Carolina, Texas, 105; Nebraska, 106. The Western States range from 91 in Wisconsin to 98 in Illinois.

Almost the only variety of oats successfully grown in the South is the "red rust-proof," which has been cultivated twenty years in a single locality without rusting. The testimony is general, almost universal, to its exemption from rust. In a few cases some signs of rust are reported. Drought in May, after long-continued rains in April, has been a prominent cause of inferior condition.

COTTON.

It is evidently much easier to increase the cotton-acreage than to reduce it. The exceedingly unpropitious season for planting, aided by the counsels of Patrons of Husbandry to produce needed home-supplies and be independent, has scarcely sufficed to reduce the breadth of cotton to that occupied in 1872. Our correspondents have been urged to exercise extreme care in their estimates, and their returns cover the larger portion of the area producing cotton. The result of accurate calculations of State-averages from such data is as follows, the comparison being with the area of 1873: North Carolina, 89; South Carolina, 91; Georgia, 90; Florida, 91; Alabama, 86; Arkansas, 89; Tennessee, 92; Mississippi, 88; Louisiana, 80; Texas, 102; Missouri, 75. The aggregate reduction slightly exceeds 10 per cent.

The condition of the crop is represented by the following figures, 100 being normal or fair condition: North Carolina, 89; South Carolina, 81; Georgia, 80; Florida, 90; Alabama, 82; Mississippi, 78; Louisiana, 70; Texas, 90; Arkansas, 90; Tennessee, 85. The report of condition in June, 1873, is more favorable in every State except Texas, the record standing as follows: Virginia, 93; North Carolina, 85; South Carolina, 88; Georgia, 94; Florida, 102; Alabama, 93; Mississippi, 92; Louisiana, 94; Texas, 86; Arkansas, 92; Tennessee, 90.

The season has been remarkable for heavy and frequent rains during the month of April throughout the cotton States. In some sections the aggregate reported exceeds 16 inches. All rivers, creeks, and "spring branches" even, overflowed their banks, destroyed the plants, and prevented germination on newly-planted lands. In the more southern belt replanting was general both on bottoms and uplands. From the first week in May to its close drought was almost universal. The soil was afterward baked by the hot sun, retarding cultivation and preventing growth. The stand is therefore very poor, many plants not having made their appearance on the 1st of June.

Since the last of May light showers have been general and prospects.

are much improved. Fields are much cleaner than at this date last year, and can easily be kept free from weeds. With favorable weather, rapid improvement is certain and a fair comparison with July quite probable at the next report.

The returns are so similar in tenor that unnecessary repetition in extracts will be avoided. In North Carolina the complaint is general of slow germination, on account of cool, dry weather. The soil has been cloddy, rendering cultivation difficult and imperfect. The stand is better in States farther south, where planting was general before the April rains. In some counties the plant has come up quite evenly. In Greene County the stand is the best for several years. There was a frost in Craven on the 9th of May sufficient to kill cotton. The improvement has been very satisfactory during this month and the last week of May. Fields are generally chopped out reasonably clean, and in good condition to make the most of growing weather.

The stand in South Carolina is not uniform in different localities, and there is wide difference in reports of condition. Rains in May brought up replanting in Edgefield, and late seeding has been successful in Georgetown, on the coast. The stand is poor in Union, Beaufort, Barnwell, Chester, York, and Richland. In Laurens one-fourth of the spaces were unfilled on the 1st of June; plants were dying out in Newberry; in York the cotton planted since May 4 was not half up; and there was the worst stand for years in Marlborough. The crop is late, but promising, in Marion. Early planting was injured by cold rains and frost, especially that of April 29.

The reports from Georgia are full of complaints of the drowning-out of cotton in April by overflow of bottoms and saturating and packing the soil of uplands, making replanting generally necessary. These rains continued till about the 5th of May, ceasing then entirely, the ground becoming so dry that new seed germinated very slowly, and in some cases not until the coming of the showers of June, if at all. There was some difficulty in obtaining seed to plant, and some of that used may have been deficient in vitality. Some plants came up freely, and afterward withered and died. It would have been better, in the opinion of some correspondents, not to have planted till May. The planters have been incessant in efforts to repair damages and secure the required area in culture. The quantity of commercial fertilizers used in Georgia this year is evidently less than for several years past, and labor is somewhat cheaper. The later reports are more promising; seasonable showers, with increasing heat, has given the crop a start indicative of rapid improvement. Returns relative to cotton were received from fifty-nine counties of Georgia.

The stand is better in Florida than in neighboring States. The weather was mild until April, when cold rains became frequent, generally with high winds or hail. For a time the plants felt the effects of these unfavorable changes, but have largely recovered, and now begin to look quite promising. Some correspondents say there is *talk* about increase of supplies and decrease of cotton, but think there will be little change. In Madison there is less cotton and also less corn. With an absence of worms and equinoctial gales, or similar causes of loss, correspondents are hopeful of a good harvest. Much of the first planting was destroyed by floods and cold, saturating rains. The replanting was at first favored by dry weather, afterward retarded by continued drought, and the germination was very slow in the baked, indurated soil.

Mississippi reports conditions similar to those affecting the crop of Georgia and Alabama; the same rains in April, frost the last two nights

of that month, replanting, drought, and slow germination. In Lee, planting was not over on the first of June; in Marion planting was still in progress; so in many other countries. In Wilkinson, from January 1 to May 1, there were fifty-five days of rain, four of snow, and only two absolutely fair days. In Clark 16.7 inches of rain fell in April. The crop made very little show above ground until late in May, and chopping out was correspondingly delayed. As soon as showers came, and plowing and chopping out were finished, a new impetus was given to growth.

In Louisiana the overflow of the Mississippi overbore all other calamities. An immense area was submerged, and the crops totally destroyed. Some of the parishes were mostly under water. Our Madison correspondent reports "where the water left the land, it is so hard that it is impossible to plow." In the eastern part of State the overflow of the Pearl and Bogue Chitto Rivers caused much injury to plantations. In Saint Mary, two-thirds of the area was submerged; in Terre Bonne, more than one-half; in Richland, one-third. In the latter parish the rain-fall reported for April is 20 inches. The rain was so heavy in Iberia as to prostrate the plants and strip them of their leaves. The weather was very dry for a month subsequent to the 25th of April.

The crop is in better condition in Texas than elsewhere. The stand is more uniform, and the vicissitudes of the season less injurious. In some counties there is complaint of injury by wet weather. The growth is less advanced than usual, but the plant is generally healthy and the fields clean. Our correspondent in Austin says cotton is a surplus crop, supplies of other products being grown at home. The area planted is fully equal to last year, as might be expected from the constant immigration received from other States.

Arkansas has suffered much from the overflow of the Mississippi and tributary rivers. The rains in April and drought in May injured the crop in the uplands. Recent showers and sunshine have conspired to give new vigor to the plant, and the prospects are brightening.

The season has been very unpropitious for cotton in Tennessee. Little was planted till May, and in some places not a row had been worked on the 1st of June. There is much complaint of poor stands and unpromising appearance. Over 17 inches of rain in April fell in Knoxville.

FRUITS.

The bloom of all orchard-fruits has been generally abundant. The frosts of April, especially those of the 29th and 30th, were not too early in the Southern States to be harmless. They proved exceedingly destructive to fruit-prospects throughout the entire region south of the thirty-ninth parallel and the Ohio River. There are exceptions in the vicinity of rivers and in other protected locations, but they are very few. Scarcely a southern county makes so positive a statement as Boone, Arkansas. "Almost every tree is loaded. Thousands of bushels of apples and peaches will doubtless rot in the orchards." A reduced yield is the nearly universal expectation, and many reports indicate less than a fourth of an average crop, and some scarcely a tenth. In cases where the germ escaped destruction by frost the young fruit is rapidly withering and falling off to a very discouraging extent.

In the Eastern States the bloom is generally quite full, but the fruit was not developed sufficiently to make a report of condition satisfactory. Reports from the fruit regions of Western New York, Ohio, Michigan, Missouri, Kansas, Texas, and California are variable, but of fully average promise. In Pennsylvania the prospect for fruit is

generally good. Increasing attention is paid to fruit culture in some portions of this State. It is stated that in Wyoming County "millions of fruit-trees and vines have been set out within the past fifteen years, and all are loaded with bloom and set with fruit." Fruit-culture is also attracting much attention throughout the South.

Apples.—The States reporting condition, average, or above, are as follows: Maine, Ohio, Indiana, Kentucky, Texas, 101; Rhode Island, New York, Minnesota, 103; Vermont, Illinois, Wisconsin, 104; Iowa, California, 105; Pennsylvania, Missouri, Nebraska, 106; Michigan, 107; New Jersey, 111; Massachusetts, Kansas, 118; Connecticut, 119. Those below average: Virginia, 59; Mississippi, 67; Louisiana, 75; North Carolina, 76; Georgia, 82; Alabama, 83; Delaware, 88; Tennessee, 90; Maryland, 92; Arkansas, West Virginia, 96; South Carolina, 97.

There is some complaint of injuries of insects in different portions of the country. "Caterpillars are more numerous than ever" in New London County, Connecticut, and very abundant in other sections of New England, and the pest is reported "in countless millions" in Ripley, Ind. In Decatur, Iowa, "the leaf-roller has taken nearly half the apples." The ravages of the measuring-worm are also reported. In Montgomery, Ala., a blight similar to that affecting pear-trees is injurious to apple-trees.

PEACHES.—The eastern peach-growing regions do not present very favorable reports of condition. The average for Delaware is but 60; that of Maryland, 61; and New Jersey is placed at 80. Mild weather in winter advanced the buds, and late frosts and sleet brought much injury throughout this belt. A report from Kent, Maryland, after the great April frost, stated that peaches would be abundant; but ten days later, after the occurrence of further frosts, our correspondent wrote that there would scarcely be a fourth of a crop—a full crop of Hale's Early, but scarcely any of Crawford's Early or Crawford's Late. Hale's Early has also measurably escaped in Caroline and Queen Anne. A similar injury of late frosts is reported from Wicomico and other peach counties. The reports concerning the Michigan peach-region are favorable, and the average for each of the States west of the Ohio is not less than 100. The Middle States, (excepting Pennsylvania,) Ohio, and all the Southern States east of the Mississippi, will have a comparatively small production this season. The destruction was caused by frost and hail. The storm of the 29th of April, which was of snow as far south as Washington and throughout the plateaus of the South, was peculiarly destructive to young fruit or its germs. A portion of Indiana and Illinois report excellent prospects. It is reported from Jasper County, Missouri, that seedlings are a failure, while budded trees bear half a crop. In orchards of Bourbon, Linn, and Wilson, Kausas, the leaf is curling and the fruit dropping. The past winter has proved very destructive to peach-trees in Oregon, especially those growing on a good soil, highly cultivated, and still worse on lands irrigated late in the season. In some localities in California the crop will be reduced by the effects of curled leaf and mildew.

PEARS.—The condition of the pear-crop is below average in nearly all the States east of the Mississippi, the principal exceptions being Southern New England, New Jersey, and Pennsylvania. The bloom was abundant, but frosts proved very destructive. In Queen Anne, Maryland, "all are gone except some Seckels and Duchesses." In Anderson, Kentucky, "a large part dropped off." In Montcalm, Michigan, "the trees are about all dead, the effect of the winter of 1872-'73"—a statement which is made elsewhere relative to peaches as well as pears. In

the vicinity of Concord, Massachusetts, the old favorite, the reliable Bartlett, has died out in considerable numbers, and many others are visibly declining in vigor.

LOCAL STATISTICS OF FRUIT-GROWING.—The following items of information concerning orchard interests are received from correspondents:

Niagara, N. Y.—The apple is our leading fruit, of which there has been sold from the county, in one year, 600,000 barrels. The export of apples in any considerable quantity commenced twenty-five years' ago, and has steadily increased. There are thousands of trees of only a few years' growth, and many large orchards are now being put out. Thousands of trees in the county, from twelve to twenty years' growth, once in two years produce from three to seven barrels of apples, worth about \$2.50 per barrel in the orchard, including barrels. Older trees often exceed these figures. Peaches come next in order of importance. The early Crawford takes the lead of all other varieties. Pears claim considerable attention, and under favorable circumstances and judicious management are paying well. They bear very regularly, and bring from \$5 to \$8 per barrel. Quite a large amount of cherries and plums are sent off. Grapes are made a specialty by a few and with profitable returns.

Baltimore, Md.—A number of small vineyards are in a flourishing condition, varying in size from one acre to five, a few exceeding the latter number, and pay from \$300 to \$500 per acre. Apples are our main crop of fruit. Almost every farm has an apple orchard containing from 100 to 800 trees. The profit is in late-keeping fruit, in many instances paying better than cereals; the demand for good fruit is greater than the supply. With careful and judicious culture apple-orchards are paying from \$100 to \$200 per acre, the refuse not included, which is profitable to convert into cider and food for hogs. Pear-culture is receiving more attention lately, paying better than apples, paying from \$200 to \$300 per acre. Cherries are also a noted fruit, and profitable. The trees need no cultivation or manures, and are not expensive in any respect. From trees that bore from six to eight bushels per tree, the fruit has been sold at \$4 per bushel. The census of 1870 states the value of our fruit-crop at about \$103,200, the crop reported being a partial failure. The value of our marketable fruit in a favorable year is not less than \$200,000.

Albany, N. Y.—An apple-orchard of twelve acres in 1872 produced 3,000 barrels of apples, and \$90 worth of fruit was sold from three pear-trees in 1873.

Steuben, N. Y.—Of summer and autumn apples we cultivate the Early Joe, Early Strawberry Harvest, Tart Bough, Sweet Bough, Fall Pippin, Gravenstein, Hawley, Porter, Rambo. Winter-apples, in the order of their prominence, Baldwin, Northern Spy, King, Lucky Apple, Rhode Island Greening, Seek-no-further, Swaar, Waggoner, Russet. The number of bushels reported for 1873 was 492,327; cider, 22,116 barrels. Peaches are grown in some of our towns; more particularly in Pultney, Bath, Cohocton, and Corning. The varieties cultivated are: Early York, Early Crawford, Alberge, George IV, Tillotson. The first two are the most productive and profitable. The yield in 1873 was 5,697 bushels. Pears are grown along the shores of the Crooked Lake with profit. The Bartlett is the leading variety in yield and profit; six trees in this vicinity yielded, in 1873, 14 bushels, which sold at \$6 per bushel. The Flemish Beauty, Dix, Duchess d'Angouleme, Napoleon, and Seckel do well with us. The report for 1873 was 1,798 bushels. Grapes constitute a notable feature of our fruit-production. Several hundred acres of vineyards are cultivated in the towns of Pultney, Wayne, and Urbana, and the yield in 1873 reached the enormous amount of 3,000 tons, two-thirds of which were sold in New York and the balance made into wine and brandy. The yield per acre is from 1 to $2\frac{1}{2}$ tons. One vineyard of five acres produced $12\frac{1}{2}$ tons, which sold for \$1,500, but the usual net product is about \$125 per acre. A vineyard of Delaware grapes has netted for the last three years \$275 per acre. The Catawba and Isabella are deemed the standard varieties, and the Concord and Delaware the best early varieties.

Tompkins, N. Y.—The Duchess d'Angouleme, Bartlett, Virgalien, Flemish Beauty, Seckel, Sheldon, Beurre d'Anjou, Vicar of Wakefield, Howell, Onondaga, Beurre Diel are a few of the many kinds of pears. I raised over 500 bushels upon 250 dwarf Duchess d'Angouleme trees, that occupied less than one acre of land, and which sold for over \$1,100, besides transportation and commission. The prospects this spring are as favorable for a large crop as one year ago.

Burlington, N. J.—J. S. Collins, of Moorestown, reports his strawberry-crop, on five acres, as averaging \$350 per acre; his raspberry-crop, five acres, averaging \$250 per acre; blackberry-crop very light. The above are gross receipts. Year before last his gross receipts from 75 acres of blackberries were \$22,500, or \$300 per acre. This last-named crop was not grown on his home farm, but on his farm in Camden County. The Park Cranberry Association, formed in the spring of 1865, and purchased 164 acres of cranberry-land in New Hanover Township, and proceeded at once to prepare the ground and plant cranberry-vines. The first season about 15 acres were planted,

and for the three or four following years a portion was planted each spring, until the quantity in vines amounted to about 90 acres. The expense was heavy and at times looked discouraging. The amount received from commission-merchants, each year, after they had deducted the charges for freight, cartage in the city, and their commissions, is as follows: for the crop of 1867, \$590; 1868, \$2,334.46; 1869, \$5,776.16; 1870, \$16,981.17; 1871, \$12,058.58; 1872, \$34,732.70. The crop of last year was a good one, amounting to over 10,000 bushels, but owing to the derangement in financial matters prices were low and the amount received was much below that of the preceding year.

William Parry, of Burlington County, New Jersey, writes: Strawberries are more extensively grown in this neighborhood than other fruits. The system adopted of covering the beds all over with stable-manures at the approach of winter has the most salutary effect; it protects the crowns of the plants from the bleak winds and severe weather; prevents the roots from being thrown out by alternate freezing and thawing; the strength of the manure penetrates the ground and supplies the roots with nourishment to produce an abundance of large berries. The principal objection urged against the practice, that the covering retards ripening the fruit, is now considered a gain, as it allows southern berries to disappear and there is a demand for fine strawberries something later.

Erie, Pa.—The lake-shore plain, from 30 to 100 feet above the level of the water and about two miles wide across our country, with a gradual rise of about 300 feet above the lake-level, has proved very prolific in the culture of the vine. The leading varieties are the Concord, Hartford Prolific, Ives's Seedling, Delaware, and Catawba. The Delaware is sometimes injured by frost in the fall, before ripening. The other varieties generally ripen well.

Hillsdale, Mich.—Our orchards range from 50 to 500 trees, more or less, many of them shipping from 50 to 400 barrels. One orchard (that of B. B. Willett's) produced 600 barrels; he has about 800 trees. Among the most prominent varieties raised here are the Russets, Swaar, Spitzemberg, Seek-no-further, Peck's Pleasant, Belmont, and Talmam Sweet. Among the most prominent pear-orchards is that of H. B. Tucker, of Janesville, containing 1,300 trees, 400 in bearing—standard and dwarf. His principal varieties are Bartlett and Sheldon for standard, and Duchess, L. B. De Gersey, and Seckel for dwarf. Mr. Tucker has also the largest peach-orchard, I think, in the county, containing 2,000 trees eight years old, and a prospect now of a full crop. In 1872 he shipped 300 bushels, but last year was a failure.

Washtenaw, Mich.—Thomas Wood, of Pittsfield Township, from 1,000 Baldwin trees, thirteen years from setting, produced a net income of \$2,665 in 1872. The purchaser packed them and Mr. Wood picked them, and the culls more than paid for picking. Mr. Groves, of Northfield, in 1872, from 600 trees, $\frac{1}{2}$ Baldwins, $\frac{1}{2}$ Steele's Red, produced a net income of \$1,300 to \$1,400. Same man, in 1873, \$900 from same orchard. G. N. B. Renwick, of Salem, in 1872, from 600 Baldwins and Steele's Red, thirteen years from setting, produced a net income of \$2,000, and in 1873, \$1,500. Noah Donaldson, of Saline, in 1872, from 32 Baldwin trees, thirteen years from setting, sold \$250.

CLOVER.

In the New England and Middle States the acreage of clover does not vary much from average. Indiana indicates a decrease of 1 per cent.; Michigan, 6; Ohio 9; West Virginia, Kentucky, and Wisconsin, no change; from Florida, Louisiana, and Texas there are no returns for clover; the remaining States report an increase: Nebraska of 31 per cent.; California, 23; Arkansas and Kansas, 15; South Carolina, 12; Missouri, 8; Mississippi only 1; others range from 3 per cent. in Virginia to 7 in Iowa and Oregon. The condition reported is average in New England. In New York, 11 per cent. below, being extensively winter-killed. Niagara reports that old clover-meadows never looked so badly. Pennsylvania is 2 per cent. and Michigan 14 below, for like reasons; Ohio, 16 below, and Indiana 9, owing to the combined effects of winter-killing and drought; Tennessee, 14 below, drought being specified in several counties. The following States report the condition above average: South Carolina, 104; Arkansas and Oregon, 103; Missouri, 102; California, 109. In the last-named State, Napa reports that alfalfa, which is being cultivated on a large scale, in favorable localities yields three crops of hay per annum, besides affording rich pasture and Placer, that it has become a favorite, and in future will be exten-

sively cultivated, as it produces six to ten tons of hay per acre. Newton, Missouri, reports that clover does so well that it will soon be the crop of the county; Fulton, Arkansas, that the encouraging results of experiments thus far will cause extensive sowing; and Antelope, Nebraska, that the first sowed, last year, promises well. The average condition for all the States is 97.

SPRING PASTURES.

The late spring caused pastures to be generally backward at the time of reporting. It is evident that the figures were somewhat reduced, owing to this circumstance, though it is one from which a speedy improvement almost necessarily follows. The only State in New England in which the average condition is below 100 is Maine, 96; the cause indicated is winter-killing. The following States report that pastures are suffering to a greater or less extent from dry weather: Virginia, 99; Alabama, 92; Tennessee, 91; West Virginia and Indiana, 90; Kentucky, 97; Ohio, 88; Iowa, 94. Returns from New York indicate an average condition of 94; Pennsylvania, 93; California, 110; Texas, 109; New Jersey, Delaware, Maryland, Florida, Arkansas, Illinois, Missouri, Nebraska, and Oregon range from 100 to 105; the remaining States, from 90 in West Virginia to 99 in Minnesota. The average condition for all the States is about 99.

FARM-STOCK.

Cows.—Milch-cows have generally entered on the 1st of June in fair condition. The average for the entire country is 100. The highest condition reported, 25 per cent. above average, is in Texas, where the winter was unusually mild and free from hard storms. The next highest, 11 per cent. above, is in Arkansas. The lowest, 15 per cent. below, is in Kansas, owing chiefly to suffering in the winter and spring for want of shelter in severe storms, aggravated by scarcity of feed. Ohio and Missouri report a condition averaging 8 per cent. below. In the remaining States the averages range between 94 and 106.

CALVES.—Returns from all the States, of the number of calves dropped indicate an average increase over last year of 1 per cent. The largest increase, 9 per cent., is in Nebraska; South Carolina, 8; Texas, 7; Wisconsin, Minnesota, 6; Iowa, Virginia, 5; Maine, 3; Pennsylvania, Michigan, Louisiana, 2; Vermont, North Carolina, Florida, Mississippi, West Virginia, Oregon, 1 per cent.; Illinois averages the same as last year, and Indiana 2 per cent. less.

SHEEP.—The loss of sheep the past winter averages for all the States 7 per cent. of the whole number. The heaviest losses were in Louisiana, averaging 14 per cent.; Georgia, 13; North Carolina, 12; Alabama, 11; Mississippi and Tennessee, 10; South Carolina 10; Missouri, 9; Arkansas, 9. In New England and the Middle States, where the flocks are generally small and well sheltered, the losses average about 6 per cent. The report from Licking, Ohio, calls attention to the well-known fact that losses are much greater in proportion in large than in small flocks. Madison, North Carolina, reports that sheep recently shorn were frozen to death in a snow-storm occurring on the 29th of April. The snow was 2 to 12 inches deep, according to locality, and remained on the ground four days. In Missouri, Crawford, Johnson, and Franklin report that the losses are chiefly by dogs. Similar reports come from Wicomico, Md.; Gloucester, Essex, Louisa,

Southampton, and Powhatan, Va.; Bedford, Tenn.; Logan, Ky.; and Kosciusko, Ind. In Iowa, Mitchell reports that sheep-husbandry is generally discontinued, and Benson that it is growing in disfavor, owing, principally, to destruction by dogs—"more deaths from this source than from all others." Clackamas, Oreg., reports that the dog-law has to a great extent lessened the mortality among sheep.

LAMBS.—The average of lambs lost in all the States is 11 per cent. of the number dropped. The largest losses are in Louisiana, 24 per cent.; Rhode Island, 16; Wisconsin, 16; Kansas, 16; Ohio, 15; Michigan, 15; California, 15; Missouri, 14; Iowa, 13; Kentucky and New Hampshire, 13. One clew to these high figures is given in the report from Placer, Cal.: "A heavy loss of lambs from the poor condition of sheep in lambing-time." Blount, Tenn., reports that losses of sheep and lambs have resulted almost entirely from shearing followed by cold storms. Texas, Arkansas, and Oregon report the lightest loss—8 per cent. Of the other States the maximum—13—is in Vermont.

MAPLE-SUGAR.

The season for maple-sugar was unusually favorable, and the quantity, both of sugar and sirup, manufactured was largely above an average. Compared with last year, the average increase reported for New England is, of sugar and sirup, about 50 per cent. for each; for New York, 27 and 18; for Pennsylvania, 6 and 12; for the four States, Ohio, Michigan, Indiana, and Illinois, nearly as much increase. In Wisconsin and Minnesota, and in the other States farther south which manufacture maple-sugar on a small scale, the quantity of both kinds is 4 to 12 per cent. below that of last year. Furnas, Neb., reports that, while no maple-sugar is made, an article equally good is manufactured to considerable extent from box-elder.

Table showing the condition of the crops, &c, on the 1st day of June, 1874.

States,	WINTER-WHEAT.	WINTER-RYE.	WINTER-BARLEY.	SPRING-WHEAT.	SPRING-BARLEY.	CLOVER.	OATS.	SPRING-PASTURE.	Average condit. ion June 1.
									Average com- pared with last year.
Maine	100	96	.....	90	94	97	100	98	98
New Hampshire	100	93	.....	92	88	92	100	97	96
Vermont	120	80	.....	95	100	99	105	104	104
Massachusetts	102	98	.....	87	100	102	108	100	100
Rhode Island	90	96	.....	100	92	100	105	96	101
Connecticut	102	104	.....	100	101	100	100	97	100
New York	89	99	92	102	93	107	94	99	99
New Jersey	99	113	102	103	98	98	98	101	103
Pennsylvania	103	111	96	97	94	98	95	98	98
Delaware	101	116	100	104	101	98	100	108	100
Maryland	103	112	101	100	101	100	100	108	102
Virginia	103	115	95	94	100	100	99	92	102
North Carolina	106	116	103	105	103	105	106	105	105
South Carolina	108	108	98	98	96	96	116	98	104
Georgia	115	112	108	108	93	108	125	86	104
Florida	107	115	110	102	100	108	102	87	100
Alabama	150	97	100	75	.....	.....	101	97	107
Mississippi	135	88	103	90	105	103	98	89	101
Louisiana	149	125	100	100	100	92	108	100	105
Texas	120	126	97	106	92	103	100	100	115
Arkansas	102	116	95	110	.....	.....	108	97	86
Tennessee	109	125	95	105	75	105	103	100	93
West Virginia	94	96	94	83	80	103	97	99	90
Kentucky	102	94	96	100	95	115	92	105	100
Ohio	103	99	101	94	90	90	95	107	91
Michigan	106	90	96	92	98	90	95	107	99
Indiana	109	117	93	100	100	103	108	100	108
Illinois	90	91	95	88	95	95	103	91	91
Wisconsin	100	105	97	105	103	105	94	104	100
Minnesota	101	113	101	103	107	110	99	101	105
Iowa	112	114	97	101	89	103	105	98	107
Missouri	130	115	115	100	107	102	102	104	98
Kansas	85	101	150	115	115	116	109	112	115
Nebraska	108	106	105	103	106	111	106	107	131
Oregon	109	103	100	102	106	105	106	102	123

Table showing the condition of the crops, &c.—Continued.

States,	MAPLE SUGAR AND LASSIES,	COWS.	CALVES.	COTTON.	APPLIES.	PEACHES.	PEARS.	AVERAGE CONDITION OF THE CROPS DURING THE SPRING.	
								AVERAGE CONDITION OF COWS WITH CALVES.	AVERAGE CONDITION OF CALVES.
Maine.....	152	108	103	6	9	101	111	103	103
New Hampshire.....	136	140	96	7	13	110	110	100	96
Vermont.....	146	185	100	6	14	110	104	111	107
Massachusetts.....	170	162	101	3	11	131	118	121	120
Rhode Island.....	103	103	100	7	16	118	103	100	100
Connecticut.....	115	106	100	3	11	127	119	122	114
New York.....	127	118	96	6	11	110	103	101	97
New Jersey.....	97	100	97	5	9	119	111	95	80
Pennsylvania.....	116	112	97	7	13	114	106	108	104
Delaware.....	102	100	102	5	10	105	92	88	90
Maryland.....	102	101	97	8	12	102	90	99	60
Virginia.....	83	80	105	5	10	80	90	59	61
North Carolina.....	105	105	108	12	12	89	80	95	91
South Carolina.....	100	100	100	11	11	91	81	97	91
Georgia.....	106	101	101	7	9	91	90	83	83
Florida.....	104	106	101	11	10	86	82	93	94
Alabama.....	106	101	101	10	10	88	78	67	98
Mississippi.....	98	102	102	14	24	80	70	75	75
Louisiana.....	102	107	107	6	8	102	90	100	101
Texas.....	101	101	101	13	12	90	80	94	82
Arkansas.....	78	101	94	10	8	89	90	96	96
Tennessee.....	91	84	101	9	12	92	85	105	90
West Virginia.....	92	96	101	9	13	107	107	96	112
Kentucky.....	117	111	92	7	15	109	101	101	101
Ohio.....	113	95	98	7	15	103	103	93	93
Michigan.....	112	102	102	5	15	113	107	105	100
Indiana.....	111	101	95	98	7	110	105	101	101
Illinois.....	108	142	94	100	8	10	116	104	94
Wisconsin.....	96	84	98	106	6	16	104	104	85
Minnesota.....	90	90	105	106	6	10	105	103	100
Iowa.....	100	101	97	105	6	13	110	105	100
Missouri.....	96	95	92	98	9	14	75	95	95
Kansas.....	85	85	105	105	16	16	135	118	118
Nebraska.....	99	109	105	105	10	15	111	106	106
California.....	96	96	101	10	15	105	105	103	110
Oregon.....	96	101	10	10	8	113	105	96	104

EXTRACTS FROM CORRESPONDENCE.

PEA-NUT HAY.—*Hickman, Tenn.*—The pea-nut has been our principal crop since the war until last year, 1873, for which I estimate the crop at 50,000 bushels. The hay saved is worth to the farmer about half the market-price of the pea. It is very nutritious, and, when carefully gathered and cured, all kinds of stock will eat it greedily. The pea-digging time commences in the latter part of September, and continues until about the 1st of November. The implement used is something like a subsoil-plow; a furrow is run on each side of the row, loosening the vine without turning it. A boy or girl follows the plow, after the second furrow is turned, catches the top of the vine and turns it bottom upwards, exposing the pea to the sun, where it lies from one and a half to three days, if clear weather. An 8-foot stake is then driven into the ground sufficiently deep to prevent the wind from blowing it down. The vines are gathered and packed around the stake, pea inside, in which position the pea will remain all winter without injury. Those who have barns or sheds, under which to pick off the pea, commence hauling these small stacks as soon as their other farm duties will permit, and then commences the picking season. As the pea is picked off the vine is carefully housed for the stock. Those who have no barns or sheds let the stacks remain in the field and pick off the pea, restacking the hay as leisure or the weather will permit. They subsequently haul the hay as it is needed. The average yield per acre is about 1,200 pounds; in a wet season the yield is greater. The hay is fed alone. It will increase the milk of a cow threefold. I know of many instances where cows have been kept in good beef condition and giving an abundance of milk all winter. A neighbor informed me that he wintered 16 head of beef-cattle on his hay, (pea-hay,) feeding nothing else, and drove them to market last spring, receiving a fair price, though not so much as he would have realized had they been fed on grain.

PROFIT IN RAISING SUGAR.—*Suwannee, Fla.*—Sugar-cane is the most profitable crop raised in this county, as the following experiment will show: One acre of sugar-cane will make 2,000 pounds of sugar, worth 8 cents per pound, \$160; drippings or molasses from the same, 100 gallons, worth 40 cents per gallon, \$40; total, \$200. Expenses: seed for one acre, \$30; manuring, \$10; cultivating, \$5; manufacturing sugar, \$55; total expenses, \$100, leaving a clear profit of \$100.

SCUPPERNONG GRAPES.—*Randolph, Ga.*—Grape-culture is assuming considerable importance. Our climate is peculiarly adapted to the culture of the Scuppernong variety. Being indigenous and exempt from any of the casualties of the bunch grape in the more northern climate, it will in time render this *the grape country*. The yield is enormous—from 400 to 500 bushels per acre, and from 4 to $4\frac{1}{2}$ gallons per bushel. This yield, at a small price, will make the production a lucrative business. One hand can cultivate ten acres. The vines live from twenty to one hundred years, and need nothing but virgin earth and scuffing to insure a bountiful yield every year.

DAMAGES BY RAIN AND FLOODS.—*Perry, Ala.*—During the month of April an unprecedented amount of rain fell, and farm-work has greatly suffered. Less than half the days in the month were fit for work in the lime-lands. Wheat, though good, has been somewhat injured by the rains. Corn has suffered from the rain and cold weather. The cotton crop is in a very bad condition, and farmers are more gloomy about it than I have ever seen them.

Arkansas, Ark., April 26.—For the last seven weeks the weather has been so wet that nothing has been done. The Arkansas River is still rising. Many bridges are gone, most of the bottoms on the south side are under water, and cattle and stock of all kinds, where the owners can save them, are being rafted over to the north side, so that our prairies are now dotted over with poor, starving cattle. Hundreds have lost all, and it is reported that many lives have been lost. On the north side we are out of the reach of the river, but not a furrow has been turned over yet in this section.

Tensas, La., May 1.—Our parish is now almost entirely under water, consequently there is no other subject on which to report. A few small fields and parts of fields, just behind the levees that have not given way, are out, but the rains have been so frequent and so heavy that this land has no crops on it. All will require replanting. The amount of rainfall in the month of April was never before witnessed by any person living—nearly 22 inches in thirty days. And still the weather is unsettled, and the water rising. What is to become of the people is the question. The low price of last year's cotton crop left the laborers without any surplus proceeds. The corn crop, much better than the preceding year, but not nearly sufficient to carry them through, is now about exhausted. No money, no credit, no provisions; that is the condition of most of our laboring people. Their stock is on the mounds and up in the barns and houses. One man has his six mules in the kitchen adjoining his dwelling.

Osage, Kans.—In my April report I stated that cattle were coming out of winter quarters in good condition. Since then we have had a succession of sleets and storms which, in connection with great scarcity of feed, have caused the death of thousands upon thousands of cattle in Kansas. From the best information I can get the loss in

Osage County alone will amount to not far from \$150,000. At this date, May 1, the grass is just starting a little, so that the cattle which are still on their feet, may possibly live.

Marion, Miss.—The rains in the latter part of April exceeded anything within the memory of the oldest inhabitant. The flood in Pearl River was higher by three feet than has been known since the settlement of the country. One-half at least of the lands in cultivation in the river swamps is totally ruined, either from washing away or by immense deposits of sand. In consequence, the crops in this county will be reduced at least one-half, even if we are favored with a good season. Cotton is just now, May 1, being planted. Cotton on lands not submerged has been killed up to the present time by the rain and cold.

GROWING AND PRESERVING POTATOES.—*Marion, Miss.*—The destitution likely to result from the failure of the corn crops this year has led me to consider the improvidence of the people of this section in failing to plant, in sufficient abundance, those food crops which can be raised in unlimited quantities with a small expenditure of labor compared with that required for corn. The first of these is the Irish potato, which now constitutes the staple article of food of the laboring classes in the most thickly settled parts of the earth. It is a singular fact that, although the Irish potato can be raised with no more labor, and with far more certainty than in the North, it is universally regarded in the South as a sort of luxury to be planted in the garden and enjoyed only during three months in the year. Sufficient to supply any family during the whole year can be raised with ease on one acre of ground, and to a large extent take the place of corn as now used. The only drawback is the fancied impossibility of keeping them sound; but I know of one farmer who has Irish potatoes all summer, simply by letting them remain in the ground, after they come to maturity in May, until it is time to plant again in the fall. He never has a rotten potato. When he is obliged to dig he spreads them out on a dry floor and has no trouble from the rot. I think they might be kept sound, also by burying them when dug, under two or three feet of earth. Please call attention of farmers through the South to this matter, and invite discussion as to the most certain means of keeping the Irish potato free from rot after digging. Another objection made to its culture in this section is, that it "runs out," thus requiring the purchase of new seed every year. The experience of several planters during the war has shown this to be a mistaken notion. I know several who raised Irish potatoes from their own seed for five years in succession, and they suffered no deterioration.

Another substitute for the corn we buy so largely from the West is the sweet potato. This flourishes here in the greatest perfection, the yield being often above 300 bushels per acre. It is now used to a considerable extent for food, but I think the greatest advantage might be realized from its use as feed for horses and other stock. It can be raised at a cost of 8 cents per bushel, and as a feed for horses two bushels are equal to one of corn or oats, which costs on the average \$1. By raising sweet potatoes the saving in money would be great, even if it took five bushels to equal in nutritive capacity one of corn. Here, again, the difficulty of keeping them, in the mode practiced by the majority of farmers, is the only obstacle in the way of increased use of them for feed. But last year I saw, in October, 3,000 bushels in one pile on the farm belonging to the Lunatic Asylum of this State. The superintendent stated that he had sweet potatoes during the whole year, and explained his method of keeping them. He puts his whole crop in one bank. This, at the time named, was at least 60 feet in length, 14 in breadth, and 1 in height; over the whole pile dry grass was thrown to the depth of one foot; the earth was thrown on the bank to the same depth, extending to the top on the north side, but only about half way to the top on the south. The whole was covered with long plank laid on from the north side at an angle of 45°, extending over so as to protect the whole bank from the weather, and supported by posts standing in the middle of the bank at intervals of 4 feet. The posts were hollow and full of auger-holes, so as to afford ventilation and the escape of moisture generated in the heap. The superintendent, Dr. Compton, stated that his potatoes banked in this manner remained sound during the whole year.

NATIONAL AGRICULTURAL CONGRESS.

The third annual session of this body, composed of representatives of the various open and secret local organizations in aid of rural interests, convened at Atlanta, Ga., May 13, and continued in session for three days. The proceedings were entirely harmonious, and characterized by a fraternal and progressive spirit.

The meeting was called to order by Gen. W. H. Jackson, of Tennessee; opening prayer was offered by Rev. David Wills, of Atlanta; speeches of welcome were made by the mayor, Samuel B. Spencer, in behalf of the city, and by Gen. A. H. Colquitt in behalf of the Georgia Agricultural Society; and a response was made by the secretary, C. W. Greene. In the afternoon a paper from Mr. Lawton, of South Carolina, was read as a partial report of the committee on transportation, favoring a line of narrow-gauge railroads from the Mississippi Valley to Savannah. A communication was presented from Prof. C. G. Forshey and Hon. P. H. Herbert, of Louisiana, relative to the proposed Fort Saint Philip Canal.

On Thursday, the 14th, a resolution was passed pledging aid to the sufferers by the disastrous overflow of the Mississippi; another for a committee to memorialize Congress for the passage of a bill for the further endowment and support of colleges for the advancement of practical industrial education. The committee consists of Messrs. Bishop, of Arkansas; Beverly, of Virginia; Colquitt, of Georgia; Aiken, of South Carolina; and Winter, of Alabama.

By invitation, the Direct-Trade Convention occupied seats in the hall during the delivery of addresses of the morning, and Governor Smith and the State officers were also present. General Jackson then proceeded to deliver his annual address as president, which was received with much favor. This was followed by an attempt to deduce from agricultural statistics certain practical lessons of vital importance to the agriculture of different sections of the country, by the statistician of this Department. The matter of both of these efforts was strongly indorsed by subsequent action of the congress.

A paper from Prof. C. V. Riley, on the use of paris-green as a remedy for the cotton caterpillar, was read.

On the third day a paper from Hon. C. W. Flagg was presented on cheap transportation and the power of the National Government over inter-State commerce.

The committee on transportation, consisting of Messrs. Peyton of Virginia, Dodge of the District of Columbia, Colquitt of Georgia, West of Illinois, and Maxwell of Tennessee, made the following report:

Whereas it is evident that cheap transportation of the commodities of a country is a necessity of agricultural prosperity and national development; that the agriculture of the interior of our country is now paralyzed for want of facilities for transportation of its products to the seaboard; that while we recognize the value of railroads, and the necessity of further railway extension, we deem the cost of transporting the crude products of the field, the forest, and the mine so disproportionate to the cost of water-carriage as to render imperative the duty of Congress to improve the navigation of the rivers of the interior, and connect them with the ocean by artificial water-ways, thus giving to the Mississippi Valley continuous lines of water transit to the seaboard; and that the railway system has engendered monopoly and unjust discrimination, the evils of which can only be obviated by completion of water-lines under Government control: Therefore,

Be it resolved by the National Agricultural Congress, That it is the duty of the National Government, which has so long and so liberally fostered foreign commerce, to enter at once upon the work of constructing a system of water-ways adequate to the present and prospective wants of inland transportation, and continue it by annual installments of aid to full completion, until unrestricted channels of trade shall be opened, not only through the entire length of the Mississippi, but connecting that great river with the Atlantic Ocean, by way of the lakes, by the Ohio, Kanawha, and James, and by the Tennessee and Savannah Rivers.

Resolved, That this convention consider appropriations by Congress for such a system wise national investments, which will at no distant day repay the Government by increased revenue created by enhanced production and developed wealth of the country.

The chairman, Col. H. E. Peyton, sustained the report in a speech replete with striking fact and telling argument. The discussion was general, resulting in the adoption of the report by a large majority.

A resolution was also passed opposing national abridgment of the authority of States in railway control.

A paper from Dr. John A. Warder, on forestry, was read. It recommends a national commission, the establishment of forest schools, and would make forestry a leading study in agricultural colleges.

The speculations and abuses practiced under United States patent-laws, and desired changes in patent legislation, intended to "secure the greatest good to the greatest number," came up for discussion, and a committee was appointed to prepare a suitable memorial to Congress on the subject.

A resolution, presented by Mr. Winter, of Alabama, was adopted, deprecating so exclusive a reliance upon cotton as at present, declaring that planting must remain unremunerative while it fails to furnish agricultural supplies of prime necessity, and urging a better culture and a greater diversity of production.

Col. R. L. Ragland, of Virginia, from the committee on the tobacco tax, made a report favoring the reduction of the tax to a uniform rate of 12 cents per pound, which was adopted.

Cincinnati was selected as the place of meeting in September, 1875, and the following officers were chosen for the ensuing year:

President.—Gen. W. H. Jackson, of Tennessee.

Secretary.—Geo. E. Morrow, of Washington.

Treasurer.—J. J. Poole, of Indiana.

Vice-Presidents.—Alabama, C. C. Langdon, Mobile; North Carolina, T. M. Holt, Tar River; South Carolina, W. M. Shannon, Camden; Virginia, H. E. Peyton, Waterford; Arkansas, A. W. Bishop; Tennessee, J. O. Griffith, Nashville; Mississippi, C. E. Hooker, Jackson; Florida, W. H. Scott, Midway; Georgia, R. A. Alston, Decatur; District of Columbia, J. S. Grinnell, Washington; Illinois, W. C. Flagg, Moore; Indiana, Alexander Heron, Indianapolis.

In accordance with the request of the congress as expressed by unanimous vote, the address on agricultural statistics, by the statistician of the Department of Agriculture, is herewith presented:

PRACTICAL HINTS FROM AGRICULTURAL STATISTICS.

The members of the National Agricultural Congress too thoroughly appreciate the importance of a systematic collection of the facts of agriculture, which necessarily include those illustrating almost every branch of natural and social science, to require an elaborate argument to prove the utility and beneficence of agricultural statistics. The range of such facts is quite too wide for bodily presentation, in however concise a form, in the time allotted to the opening of this discussion. Nor is such epitome especially required in this presence. Rather would it seem preferable to present a few deductions drawn from classes of facts, designed to be eminently practical in tendency, suggestive of grand schemes of needed improvement, perhaps provocative of wholesome criticism, and stimulative of thought and suggestion for the amelioration and advancement of American agriculture. A brief consideration of the means and appliances of statistical collection may also be deemed appropriate and timely.

USES OF AGRICULTURAL STATISTICS.

It is the province of agricultural statistics to measure the extent of our vast resources; to contrast the actual with the possible in production, by living examples of accomplished results; to weigh the effect of overproduction in the diminution of prices; to illustrate the folly of dependence on distant and uncertain markets for primary products; to show the correlation of the industries, and the advantage of augmenting numbers of consumers upon the prices and profits of agriculture; and to mark the progress of the sciences, in their application to the business of the cultivator, and to aid the ruralist in keeping pace with such progress.

There is great activity of statistical inquiry at the present time, and but little patience of investigation; there is frequency and flippancy in statement, but less of accuracy and thoroughness. There is a feverish desire to accomplish the census of a continent in one day, and proclaim its results the next. Few take time to weigh facts, sift error from truth, and reach broad and philosophical conclusions. What is wanted in statistics is more of thought and less of flurry, more industry and less precipitancy,

sounder judgment and less zeal without knowledge. Few have yet learned the logic of statistics, and some even of our lawgivers are prone to build by proxy the framework of their political economy, and liable to give it a fantastic and incongruous finish.

THE BREADTH OF OUR STATISTICAL FIELD.

When we consider that less than a third of the area of the States, and less than a fifth of the entire domain of the United States, is mapped into farms, and remember that of this farm-area only one-fourth is tilled or mowed; and when we further reflect that the average yield per acre could be doubled if the many could be brought up to the plane of the few in the practice of intensive culture, then we begin to realize what numbers our country is capable of feeding, and what waste of toil and effort comes from neglect of the economic lessons taught by the statistics of scientific agriculture.

We now know that our wheat occupies an area less than the surface of South Carolina; and, if the yield should equal that of England, half of that acreage would suffice. We know of our national crop, maize, which grows from Oregon to Florida, and yearly waves over a broader field than all the cereals beside, that it covers a territory not larger than the Old Dominion, and might produce its amplest stores within narrower limits than the present boundaries of Virginia. The potato-crop could grow in the area of Delaware, though yielding less than a hundred bushels per acre; the barley for our brewing requires less than the area of a half-dozen counties; and the weed of solace, sufficient to glut our own and European markets, is grown on the area of a county twenty miles square.

STATISTICAL TEST OF CURRENT PRACTICES.

The dictum of the poet, "Whatever is, is right," must have in agriculture, as in morals, a restricted acceptation. The prevailing practice may have an obvious and even a specious reason for its existence, when its contravention by science and experimental test is undeniable. We often fail to do what we know is best, because custom has made easy what has become habitual. The deductions of agricultural statistics reveal many a popular error or short-coming in agricultural practice. Perhaps I may not better illustrate the province and proper use of this science than by a few examples showing the prevalence of such misconception and remissness in different sections of our common country.

THE WEAK POINT IN NEW ENGLAND AGRICULTURE.

The average farmer of the Eastern States disregards the logic of facts which reveals success only in high culture. His brother of the West has cheap lands, very fertile, easily worked, without obstructions interfering with the most varied employment of agricultural machinery. His own lands may be low in price, because poor in plant-food; his sons have gone into trade and manufactures, and to virgin soils toward the sunset; his surplus earnings have gone to the savings-bank, or to Illinois or Kansas, as a loan at 10 per cent., until, rheumatic, and declining with age, he finds production also declining, his herds and flocks deereasing, and the conclusion inevitable that "farming does not pay." Labor is scarce and high because in demand by other industries, which in turn offer high prices for farm-products; fertilization is needed everywhere, draining in many situations, and irrigation in some others. But these things cost money, and he has neither the ambition nor the confidence for its expenditure, and, worse still, in many instances the money is lacking. These may be potent reasons for discouragement, but they do not prove that farming there, with money, youth, enterprise, and skill, may not be highly profitable. And the teaching of statistics, in examples of high success with high culture, disproves the current assumption of unprofitableness. There are numerous cases in which the gross return per acre has been hundreds of dollars instead of tens. I know an instance there in which a common vegetable, usually known in field-culture rather than in gardening, returned in 1873 \$12 for every day's labor expended on it. The lesson of statistics of Great Britain, of Holland, of all countries of dense population, proves success to be only possible by enriching the soil and increasing the yield. Though Massachusetts farmers constitute but one-eighth of the aggregate of all occupations, there is no reason why they should not be able to feed all, if Great Britain with one-sixteenth of her population can furnish more than half her required food-supplies. And if, in the present state of Massachusetts agriculture, the value of her annual product be \$442 to each farmer, while the cultivator of the rich prairie State, Illinois, earns but \$560, (and in point of fact it is probable that unenumerated products of the former State would swell the total to the latter figures,) then the results of intensive culture throughout the Commonwealth would be comparatively munificent. This is a valuable lesson which New England will ultimately learn from statistics, far more thoroughly than is now known and practiced by a few of her best cultivators.

A WESTERN FALLACY.

The West has also much to gain from the teachings of statistics. Iowa, vigorous and ambitious, too young for despondency, is in a spasm of indignation against monopoly and an excess of middlemen, and yet in trade and transportation she has but 8 per cent., or little more than half the proportion of the Middle States. She may have too many and too greedy go-betweens, and she needs justice in the transportation of her products; but these evils remedied, the burden of her trouble would still remain. The great difficulty is, *her corps of industry has 61 per cent. of farmers instead of 25.* Double-track railroads, canals vexed with steam-propellers, grange-association, free-trade, and every other fancied boon obtained, she will still remain in comparative poverty and positive discontent while she continues to have less than 14 per cent. of her people engaged in manufacturing and mechanical industry. History does not point to a permanently prosperous people having such proponderance of population in agricultural pursuits.

FOLLY OF FOREIGN DEPENDENCE.

Minnesota is only happy when the people of Great Britain are supposed to be in danger of starvation. That danger is greatly overestimated. Statistics will show that in some years but 3 per cent. of our wheat-export, and but a trifling proportion in any season, can be sold to any except subjects of Great Britain. On one-sixteenth the area of that island is grown in a good year one hundred million bushels of wheat; in an average season ninety millions; and in fifteen years, from 1858 to 1872 inclusive, the deficiency made good by importation was a fraction less than sixty-six millions per annum. Could home-culture be extended to meet this demand, the total breadth required would be equal to one ninth the surface of Minnesota. An increase in the average yield of wheat in France from fifteen bushels to eighteen, by a small advance in culture, would fully equal the British deficiency, as was recently stated by the well-known statistician, Mr. James Caird. Russia, with her broad and cheap acres, also stands near to compete for this deficiency. Minnesota, meanwhile, as her crop is maturing, can never ascertain whether the want will be forty millions or ninety, or whether the home price will be 50 cents or \$1, or the ultimate result debt or competence. And yet 70 per cent. of the cultivated area of Minnesota is put in wheat, and 57 per cent. of her people are engaged in its cultivation; 8 per cent. in sending it to market; a large proportion of its 14 per cent. of mechanics and manufacturers are building mills and grinding wheat; and its 21 per cent. of professional men expect much of their income from wheat. There are reasons why wheat should be temporarily grown there, but dependence upon foreign markets, evidently felt by many, for a permanent and increasing demand, is shown by statistics to be foolish and futile. The home-market is the only reliable and permanently valuable one for this cereal, and the nearer to the place of growth the surer and larger the benefit derived.

THE ERROR OF THE SOUTH.

The cotton States have been especially persistent in disregarding the teachings of statistics and defying the laws of political economy. Every intelligent publicist knows that a certain amount of money, say a present average of \$300,000,000, may be derived from cotton. If the average quantity is increased the price diminishes, and *vice versa.*

If fluctuations are frequent the speculator or manufacturer, and not the producer, derives an advantage. If you choose to produce five million bales, you obtain 10 cents per pound and lose money; if you grow but three, you get 20 cents and obtain a profit. Now it is better for the world, and in a series of years better for the grower, to produce regularly enough to supply the current wants of the trade at a medium and remunerative price, or as near a regular supply as possible, for the vicissitudes of the season will inevitably cause injurious fluctuations despite the highest effort of human wisdom and foresight. As the uses of cotton increase, and markets are extended throughout the world, its manufacture will be enlarged, and its culture should obtain corresponding enlargement. To overset the boundary of current demand and glut the market, may be pleasing to the speculator and to the manufacturer, so far as he combines speculation with weaving, but it is death to the grower.

There is much false reasoning on this matter. A planter may truly affirm that he obtains \$30 per acre for his cotton and but \$25 for his corn, and he thereupon and therefore declares that he will plant no more corn. Let all act upon this suggestion, and instead of \$55 for the acre of cotton and that of corn, the total return of the two acres of cotton will be but \$30. A surplus of corn may be put into meat, and wool, and whisky, or used to eke out a scarcity of some kind of forage for animals; but a surplus of cotton must wait for the slow grinding of the mills of the fabricating gods, usually until disgust at low prices reduces production correspondingly.

Thus, while cotton is and long will be the leading product and the most profitable field-crop at fair prices, its prominence in the list has kept, and is now keeping these States

in comparative poverty, which is unnecessary as it is inconvenient and injurious. It does not produce money enough to give wealth to a population of nine millions. The other crops, instead of barely equaling in the aggregate the receipts from this, should represent at least \$4 for every one of cotton. The census-record of production in these States is but \$558,000,000; the record should be made to read \$1,500,000,000. With three-fourths of the people of ten States employed in agriculture, the value of agricultural products exceeds but little that of the States of New York and Pennsylvania, where only one-fourth are so employed. The averages for each person employed in agriculture in those States are respectively, as deduced from the census, \$677 and \$707, while those of Georgia and Mississippi are \$239 and \$282. For the ten States the average is \$267; for the four populous Middle States, \$686. Even the States producing cheap corn show a larger return, the average for one man's labor in the five States between the Ohio River and the lakes being \$498, while the six sterile Eastern States produce \$490 for each farmer. It may be the census is less complete in the cotton States, but it is undeniable that agricultural industry makes a smaller aggregate return there than in any other section. Nor is the reason wanting; it is due to the prominence of cotton, the return for which is substantially a fixed quantity, and the neglect of all other resources.

Let us glance at the topography and capabilities of this section. The area occupied by cotton, allowing 10 per cent. addition to usual estimates, is less than one-fortieth of the surface of these States; it is but one-thirteenth of the proportion actually occupied as farms. Forty-six per cent. of the census crop was grown in 81 counties, which are all that produce as much as ten thousand bales each; and 77 per cent. grew in 215 counties, making not less than five bales each. The total acreage in cotton is scarcely more than one-sixteenth of the surface of Texas. What is to be done with the other fifteen-sixteenths? A very large proportion of the area of these States is unadapted to cotton, either by reason of elevation or of soil.

There is no other section of the country with resources so varied; none presenting such a field for new and promising enterprises. Competition is possible with the sea-islands in oranges and bananas and other fruits in Florida, and with New York and Michigan in apples and other fruits, on the table-lands of the Alleghanies. More than half the value of all cotton-exports is paid for imports of sugar, which could and should all be grown in these States. But one pound in ten of the required supply is now made, upon a smaller surface than half of a single county twenty miles square. The demand of the world for oils—cotton, rape, *palma christi*, and many other—is large, and prices are remunerative, and this section is peculiarly adapted to their production. A hundred million pounds of cheese, to compete with an equal quantity in New York, without danger of glutting the market, could be made from grasses of the glades that grow on lands costing one-twentieth the value of Empire State pastures. More than two hundred millions of acres of these States are covered with wood, and the ax is still brought into requisition to girdle the monarchs of the forest, and await a slow decay for replacing fields worn out by a wasteful culture, while a timber-famine threatens other sections of the country, and a thousand forms of woody fabrication can readily be transmuted into gold—at least into greenbacks, which seem to be referred to gold in certain districts. Even the forest-lands, certainly those of the coast-belt, are covered with wild grasses, only partially utilized, which, in connection with the herbage of the prairie sections, are worth, in flesh and wool, at a meager estimate, half the value of the cotton-crop. The list might be increased indefinitely. With the introduction of the best machinery, the most economical methods, and the most efficient means of fertilization, with well-directed and persistent labor, adapted to the wants of all classes of workers, the present population is amply sufficient to double the gross product of agricultural industry, and far more than double its profits.

SOUTHERN MANUFACTURING.

I have hitherto only spoken of agricultural industry. The suggestions relative to the necessity of other productive industries in the West apply with augmented force to the South. While the proportion engaged in them ranges from 14 per cent. in Iowa to 24 in Ohio, it only runs from 3 per cent. in Mississippi to 6 per cent. in Georgia. The intelligent planter of Georgia knows perfectly well, by the test of local experience, that the manufacture of cotton in his State is far more remunerative than the same business in Massachusetts, not only on account of saving freights and commissions both on raw material and manufactured goods, but in the greater abundance and cheapness of labor. It might be considered a fair division of the crop, and certainly a generous one on the part of the South, to keep one-third for home manufacture, to send a third to the North for manufacture into finer goods, and the remaining third to Europe. This would insure a steady and imperative demand, and a great enlargement of net profits. If you can do this without a tariff, you can afford to let the tariff slide; if not, far better for twenty years a tariff utterly prohibitory of all cottons than to forego this opportunity to make the country prosperous and rich beyond your present imaginings.

There is no good reason why Virginia should not equal Pennsylvania in manufacturing and mining production, as she ever does in resources of mine and forest. There is no sufficient cause why 25 per cent. of the people of Pennsylvania should produce in agriculture a value of \$52 annually for each inhabitant of the State, while 59 per cent. of the people of Virginia should only divide \$12 per head of total population. The influence of home markets on prices, with the reflex influence of prices on fertilization and culture, is sufficient to answer for all this difference. I ask, in all sincerity and deference, if it is manly or just to deey others who take advantage of opportunities enjoyed in equal fullness by ourselves, while we utterly refuse to use them. In this connection permit me to repeat what I said years ago, in the sincerest and most friendly spirit, of the unsurpassed facilities for mining and manufacturing enjoyed by the southern portion of the Atlantic slope:

"This path of progress has been equally open to all; laws supposed to favor a diversified industry have been applicable to all States alike; the best water-power and the cheapest coal are in States that make no extensive use of either; milder climates and superior facilities for cheap transportation have furnished advantages that have not been transmuted into net profits; and yet such communities, daily inflicting irreparable injuries upon themselves by neglecting the gifts of God, and spurning the labor of man, are wont to deem themselves injured by the prosperity flowing from superior industry and a practical political economy."

*THE COLLECTION OF STATISTICS.

Leaving considerations bearing on the value and uses of agricultural statistics, a few thoughts may be essayed upon means and appliances for statistical collection. More attention is now drawn to this subject than ever before. It is work that requires great industry and conscientiousness in collecting and arranging, and presupposes intelligent appreciation and willing co-operation on the part of the people. Hence statistics is a science that did not flourish in the dark ages. There is even now great difficulty in statistical collection, on account of popular ignorance and prejudice, in European countries, and not a little in our own country. There is yet in many minds a suspicion that the census marshal is only a harbinger of the tax-gatherer. As an extreme illustration, the State census of Ohio returned 38,000,000 pounds of tobacco as the crop of 1869; the General Government, which levies a tax on tobacco, obtained returns of only 18,000,000 for the same crop. Ordinarily, the census makes larger figures than State assessors. For instance, in the same State, the United States reported 15,000,000 bushels of wheat in 1860, and the State only 12,000,000. Intelligent people should combat this prejudice among their neighbors, and educate them as to the value to themselves of an accurate knowledge of local resources.

The means employed and lines of investigation undertaken in the countries of the globe, which encourage systematic collection of agricultural statistics, are of great variety, and the degree of efficiency attained is equally various. Specific investigations, and independent research, may be conducted irregularly by individuals; societies often do successful work within their own organization; but general investigation, involving every portion of the territory of a country, can only command success with the aid of the dignity and authority of government. The European governments are very generally committed to some system of obtaining the *acreage* cultivated annually in the principal farm crops, though not all of them. In this respect they are in advance of our own, which has never included in census laws a provision for this initial point in statistical inquiry. The agricultural census of Great Britain, which is annual, is almost confined to an enumeration of farm animals, and the establishment of the area of each crop. The quantity becomes a matter of estimate. In this country, we are left to guess the size of our fields, and the rate of production, and only once in ten years do we venture to obtain a record of gross quantities. These quantities, in the case of cereals, may, and often do, vary 200,000,000 bushels in a single year. The census of 1860 made the corn-crop of the previous year 838,000,000 bushels; that of 1870 credited but 760,000,000 to the crop of 1869; whereupon short-sighted statisticians proclaim a great decline in the culture of maize. Such an assumption is utterly unfounded. Not only is the aggregate quantity increasing, but the ratio to population—bushels *per capita*—is certainly not decreasing in any marked degree. The crop of the year 1869 was considered a failure, when Illinois actually obtained 30,000,000 bushels, though expecting in the previous July fully 230,000,000. So in wheat, the apparent increase from 173,000,000 to 287,000,000 bushels is deceptive in a less degree, and partially due to the exceptionally increased yield of 1869. The need is imperative for a census at least every fifth year, and an agricultural census, embracing area and quantity and number of farm animals, should be taken yearly. Agitation should be continued till the people, and the Congress that does their bidding, shall be educated up to the realization of such a necessity.

The State governments have an important work to do in this direction. Ohio has

long and successfully taken the initiative; Minnesota and Kansas have made a brave beginning; Iowa takes a comparatively full agricultural census biennially, and New York and Massachusetts have made quite thorough work in decennial periods intermediate to those of the national census. Other States have made partial enumerations. I am glad to learn that Georgia has commenced the work, and I hope all the people will aid in making it a thorough one. Most of the States have literally done nothing.

The collection of agricultural statistics has been made an important function of the Department of Agriculture, in accordance with its organic act. It gathers the official records of foreign governments, societies, technical schools, and those of individual workers in experimental science; of the United States census, of State assessors, and of agricultural organizations; and in addition, has an enthusiastic corps of reporters in all sections of the United States, working unselfishly for the benefit of local agriculture, and for the general weal, and monthly—sometimes oftener—aiding in a comprehensive and systematic investigation upon any topic deemed practical and important, sometimes reaching the whole country and sometimes of limited range. The work includes the reporting the condition of growing crops, the comparative area in cultivation, and ultimately the estimated product. It has proved the most reliable source of current information obtainable, has been increasing in efficiency, and can be rendered still more efficient. It is of course not a census, and is not so regarded. In the older and settled States, as to principal crops and numbers of farm animals, the degree of reliability has compared favorably with the results of an average census, and in some points has far exceeded in completeness and accuracy the results of several State enumerations. In Kansas, for instance, it proved the assessor's enumeration of sheep to be little more than half the real numbers in the State. The official enumeration of farm animals, in every State or Territory west of Missouri, either by census or assessors, is exceedingly incomplete. In the minor crops, and in all crops in new States, there is more or less incompleteness or inaccuracy in the estimates of the Department, from the present necessities of the case, as there is in many points in State and national enumerations.

Only Ohio has for any considerable period made such enumeration; a few others have barely commenced the work; the great State of Illinois only returns stock and two of the principal crops; and all of these publications are too late by months to aid in perfecting Department estimates. There is also a difficulty in constant, sometimes enormous, fluctuations in cultivated area. The wheat-crop in Ohio may in one year be 8,000,000 bushels in another, 28,000,000. Yet, in the settled States, especially as to principal crops, approximated accuracy has been attained. For seven years the Illinois estimates of each year were based respectively on those of the preceding; the estimated percentage of the previous year's crop was returned for each county, and these local returns were combined with due reference to the relative crop-value of each county, to form an accurate State average. In this time, not one scintilla of aid was obtained either from local official returns or unofficial estimates. What could be expected in such a case but discrepancy? Opportunity for verification was naturally awaited with misgivings. When the census was complete, the estimates and the returns of domestic animals were as nearly alike as two independent enumerations could be expected to be. The corn-crop had met sudden disaster by early frost, and the expected yield in August had been relentlessly reduced in October by more than 40 per cent., equal to the enormous difference of 90,000,000 bushels; the census showed a reduction only about 2 per cent. less. The figures for wheat were still closer. In fact, the substantial identity at all important points was remarkable. Was this mere guess-work, or something more? The same year the estimate of wheat in Minnesota was deemed too large by local official authority, yet the census sustained the accuracy of the national estimate and proved the State enumeration incomplete. A highly esteemed rural publicist, in New York, called in question the Department estimate of wheat of the same year, as quite too high both for New York and the entire country, and yet the census figure afterward published, were higher still.

In the South, where a gap of years in its comparisons of production, its industrial disturbances amounting to convulsion and partial destruction, equal accuracy was impossible, and of course unattained. Information concerning the cotton-crop has been more complete and of greater accuracy than all other current data upon that subject. It is true that the preliminary estimates made during the picking season have usually been under rather than over the actual outcome; and commercial estimates have usually been placed out 10 per cent. higher. The result has been, whenever a crop has been decidedly short, as in 1871, the commercial authorities have been sadly at fault.

As to acreage generally, of all our crops, there has been no reliable authority, no basis whatever being furnished by the census, and none by States with very few exceptions. The Department attempted estimates, deducing crop-acreage from estimates of aggregate production and estimated yield per acre. Now while a county estimate of total product is liable to be slightly too low, the estimated yield per acre is quite apt to be slightly too high and if uncorrected it would necessarily make the area of crops

too small, a tendency against which I have continually had occasion to labor. Some critics have flatly disputed this tendency to overestimate the yield per acre, but they have done it in ignorance of proven facts. From this consideration I have for years believed that the reported cotton acreage might be proven by accurate enumeration somewhat too low, but have not felt authorized to enlarge it without positive proof that it is so—proof that I hope soon to be able to accumulate. I recognize fully the importance of the utmost accuracy, as the Department figures for acreage of cotton are the only basis for all published statements of such areas. As an illustration of this fact, it will be remembered that during the war, great efforts were made to grow cotton largely near the northern limits of its possible maturity, and the area was estimated accordingly, and strange to say, though the effort was long since mainly abandoned, those same figures, (ten times too large for the present day,) with annual percentage modifications, are still doing duty in journalistic statistics.

But the subject is one of difficulty; no authority is infallible, and the degree of modesty with which it is treated will distinguish the superficial tyro from the experienced in statistics. Could annual enumeration be not only inaugurated by States, with a common schedule, which should include only a few plain and practical points of inquiry, but be also thoroughly made and promptly published, current estimates on such bases might be closely approximate and of greatly enhanced value. I would urge upon this body the importance of laboring to establish uniformity, to encourage in every State an annual census on such a plan, and to attempt the more difficult task of educating public sentiment to the necessity of appreciation and careful and conscientious co-operation on the part of the people.

CONCLUSION.

In conclusion, allow me to express the hope that the wise deliberation and efficient action of this body may tend to hasten the day when 25 per cent. of our people shall furnish a better and more varied agricultural supply than is now obtained by the 47 per cent. employed in agriculture; when the 21 per cent. now engaged in mining, manufacturing and the mechanic arts, may become 42; when two blades of grass shall grow instead of one, twenty-five bushels of wheat instead of twelve, and an acre of cotton always bring a bale; when clover shall appear in place of broom-sedge, the sun cease to smite with barrenness the southern slope, and many fields shall be green with mangolds for the fattening of lazy bullocks grazing on a thousand hills when superior and more various implements shall, while dividing, multiply the labor of human muscle, and steam shall supplement and save the costly strength of beasts when a moiety of the farmer's income may suffice to pay his taxes, his bills for commercial fertilizers, and all purchases of farm produce that he fails to procure from his own fair acres; when railroads shall cease from troubling with unscrupulous exactions, and unnecessary middlemen are ever more at rest; when the farmer's home shall be beautiful with flowers, his farm a smiling landscape, and his barns shall groan with the burden of plenty; and, finally, when the farmer shall in every section of a broad and prosperous land be recognized as nature's nobleman, the most intelligent, just, healthy, and happy of his countrymen—"an honest man, the noblest work of God."

THE GERMAN EMPIRE.

From a statistical memoir of the German Empire prepared by T. Bödiker, and published as an introduction to the official catalogue of the German department of the late Vienna International Exposition, the following notes have been compiled:

GEOGRAPHY AND CHOROGRAPHY.—As now constitute the German Empire occupies almost the entire center of the European continent; its western neighbor, France, extends to the Atlantic Ocean while on the east, Russia stretches to the Ural River, the frontier of Asia. The transverse diameter of the empire runs northeastwardly, eight hundred miles, from Metz to Tilsit; its extreme breadth, from Habsleben, near the north border of the late Danish province of Sleswig to Kempten, near the Swiss frontier, is five hundred and thirty-four ms. The total area is stated at 9,887.4 German square miles, which, according to the late imperial standard of 7,500 meters to the mile, gives an area of 214,711 English square miles.

The northern part of the country, skirting the Baltic Sea and the German Ocean, is low and level, constituting the depressed westward projection of the great Russo-Polish plateau, which extends eastward to the Ural River. In some places the depressed shore-line renders necessary the erection of dikes to keep out the German Ocean. West of the Elbe the coast is frequently lined with fertile meadows, back of which is a considerable waste of swamps and moors, interspersed with sand-hills. From Denmark to the Ural River the plateau is broken by the Baltic-Uralian ridges, which reach their maximum elevation of about 900 feet in the Karthaus plateau near Dantzig.

The mountain ranges appear to converge near Minden in Westphalia, spreading with a fan-like expansion southward. The principal systems are: 1. The Westphalian Rhine Slate Mountains, of Devonian origin, running southwest across the Rhine. 2. The Rhine system, running south-southwest and stretching from the celebrated Black Forest to Sollinger Forest on the Weser. 3. The southern system, embracing several ranges starting from near Passau and the sources of the Oder, and running northwest to the valley of the Ems. On the south flanks of this system are found the Bohemian, Bohmerwald, Thuringian and Teutoburger forests. The principal rocks are granite, gneiss, mica, and hornblende slate. 4. Portions of the Alpine system, the Algäuer, the Bavarian, and the Salzburg ranges cross the southern frontier.

Germany participates in ten large streams, of which three are important rivers, besides one hundred and fifty smaller streams, of which sixty are navigable. A large number of brooks afford immense water-power, driving 39,000 flour-mills. The Pregel, Vistula, Weichsel, and Oder, empty into the Baltic; the Eider, Elbe, Weser, Ems, and Rhine, into the German Ocean; the Danube into the Black Sea. Considerable lakes are formed at the foot of the Alps, in Brandenburg and in the neighborhood of Posen.

CLIMATE.—According to Dove, the Atlantic Gulf Stream exercises a considerable influence upon the German climate. The cold arctic currents not having direct access to the Baltic, this ameliorating influence is not greatly counteracted. The principal winds are the equatorial, which raises the winter temperature, bringing rain and snow, and the polar. The general temperature is higher than is usual in the same latitudes. The average temperature of leading points is shown in the following table.

Average temperatures, centigrade.

Places.	Winter.	Spring.	Summer.	Autumn.	The whole year.
Tilsit	-3.62	5.02	16.91	6.99	6.38
Kiel	0.85	7.08	16.35	9.15	8.35
Berlin	0.25	8.14	18.50	9.20	8.90
Oldenburg	1.05	7.50	16.63	8.89	8.51
Cleve	1.98	8.10	16.55	9.45	9.03
Trier	1.75	9.11	17.71	9.83	9.60
Stuttgart	1.64	9.94	18.89	10.28	10.19
Issny, (in Württemberg)	-1.40	6.83	15.79	7.69	7.23
Munich	0.28	9.20	17.58	9.34	9.10
Leipzig	-0.14	8.09	17.28	8.73	8.49
Breslau	-1.20	7.63	17.89	8.64	8.24

The above temperatures may be transmuted into degrees Fahrenheit by multiplying them by 1.8 and adding the product to 32°, the freezing point. In case of *minus* temperatures the product should be subtracted from 32.

The yearly rain-fall in the Rhine provinces is 24 Paris inches; in Bavaria, 32.9; in Wurtemburg, 28.2; in Elsass Lotharingen, 28.6; in East Prussia, 22.6; in West Prussia, 19.9. The last spring frost occurs at the end of April in the eastern provinces, and three weeks earlier in the western; the first fall frost in the east is about the middle of October, and in the west about a month later. In the east the annual number of days above 19° centigrade, or 66.2 Fahrenheit, ranges from 26 to 28; in the central provinces, 40; at Cologne, 42. Spring work begins the last of February in the Rhine provinces, but as late as May in the mountains of Pomerania and Silesia. Rye harvest ranges through July. Potatoes are dug in October. The grape and the maize find their northern limit along the isotherm of 9° centigrade, (48.2 Fahrenheit.) The climatic conditions of both animal and vegetable growth are on the whole favorable.

SOIL.—About 49 per cent. of the empire is rated as garden and plow land; 18 per cent. meadows and pastures; 25 per cent. woodland; 8 per cent. waste. The soil is not remarkably fertile. In the level northern portions it is light and by no means rich, except in East Prussia, where less favorable climatic conditions reduce its full productiveness. The regular rain-fall, however, favors the untiring and intelligent cultivation which extorts good harvests. The conditions of growth are more favorable in Middle and South Germany, but far below those of Lombardy, Belgium, and England.

LAND-TENURE.—The farms of Germany are generally of medium size and are held in fee-simple. Near Treves and Coblenz, and in Baden, Nassau, and Würtemberg the allotments are small. In the northeastern provinces and on the Upper Elbe more than half the land is held in tracts exceeding 370 acres. On the west the land-tenures resemble those of France; on the east those of Russia. Thus in social organization as well as in climate, Germany occupies middle ground between Southwestern and Northeastern Europe.

TILLAGE, LIVE-STOCK, ETC.—Saxony leads in high farming, but is not quite able to raise her own grain. Next follows the Lower Rhine, Hesse, Baden, Elsass-Lotharingen, Bavaria, and Würtemberg. The richest grain-lands are in Schleswig-Holstein, Mecklenburg, Hanover, and the Danube Valley. Gardening prevails in the middle and south. The seed and flower gardens around Bamberg, Nuremberg, Ulm, and Frankfort rival those of Belgium and Holland. Baden, Hesse, and Würtemberg export considerable quantities of fruit, while a small surplus is annually found in the Palatinate, the Rhine provinces, Thuringia, and Saxony. The flax fibers and fabrics of Silesia, Westphalia, and Hanover have a world-wide reputation. Bavaria, Elsass, and Posen raise superior hops. In 1872 Saxony, Silesia, Brandenburg, Anhalt, and Brunswick produced 61,000,000 centners* of sugar-beets. The vine, cultivated since the time of the Romans on the hills of the Rhine, in the Palatinate, Würtemberg, &c., covers 308,887 acres. Baden, Elsass, Hesse, Middle Franconia, the Palatinate, and a small portion of Prussia, in 1871, had 54,860 acres in tobacco. The average yield of wine is about 118,879,100 gallons; of tobacco 77,000,000 pounds. In 1871-'72 the aggregate yield of tobacco was 78,533,950 pounds, valued at 6,068,500 thalers, or about \$4,247,950. Of this aggregate Baden produced 22,557,590 pounds; Prussia, 21,877,900 pounds; Bavaria, 15,856,830 pounds; Elsass, 12,706,980 pounds; Hesse, 3,906,210 pounds.

Fine meadow and pasture land is distributed throughout the empire

* By late imperial decree the centner has been fixed at 50 kilograms, or a little over 110 pounds.

giving large scope to live-stock raising, especially in Schleswig-Holstein, Mecklenburg, Hanover, Oldenburg, and Algau. The last census enumerated 3,500,000 horses, 15,000,000 cattle, 30,000,000 sheep, 8,000,000 hogs, and 2,000,000 goats. The wool-clip of 1869 amounted to 82½ million pounds, mostly in Prussia, Posen, Silesia, and Mecklenburg.

FORESTRY.—Forestry, an important branch of German rural economy, dates back to Charlemagne, who afforested the Ardennes and Osnabrück woods. German forestry is the best in the world. The empire embraces a forest-area of 56,460 square miles, about equal to the State of Michigan. Of this area 34 per cent. belongs to government; 16 per cent. to individuals, or societies, and the remainder to individual proprietors. Upland forests embrace 81 per cent. of the whole, and conifers 55 per cent. About 310,000 acres are devoted to oak for tanning. The net profits of forest-land range from 56 cents to \$3.56 per acre. At an average income of 77 cents per acre, the value of the German forests is computed at \$466,000,000. This large area of forest gives scope to a considerable yield of wild game, of which, however, no trustworthy statistics are accessible.

The fisheries are decreasing in yield, but measures have been taken to arrest this decline. Several sorts of fishes, especially the bream, are abundant in the waters of East Prussia; 100 tons, worth \$5.60 per ton, have been taken at a single haul.

POPULATION.—The total population is stated at 41,058,632.

The following table shows the population and area of the different states of the empire, in English square miles:

States.	Area.	Population.	Population per sq. mile.
Kingdom of Prussia, (including Lauenburg)	<i>Sq. miles.</i>		
Bavaria	137,264	24,691,307	180
Saxony	29,919	4,863,450	163
Württemberg	5,903	2,556,244	433
Grand Duchy of Baden	7,694	1,818,539	236
Hesse	6,038	1,461,562	242
Mecklenburg-Schwerin	3,027	852,894	282
Saxe-Weimar	5,247	557,897	106
Mecklenburg-Strelitz	1,434	286,183	200
Oldenburg	1,075	96,982	90
Duchy of Brunswick	2,524	314,777	124
Saxe-Meiningen	1,455	311,764	214
Saxe-Altenburg	927	187,184	192
Saxe-Coburg-Gotha	521	142,122	273
Anhalt	776	174,339	223
Principality of Schwarzburg-Rudolstadt	916	203,407	222
Schwarzburg-Sonderhausen	372	75,523	203
Waldeck	338	67,191	199
Reuss, ältere linie	442	56,224	127
Reuss, jüngere linie	108	45,094	418
Schaumburg-Lippe	327	89,032	272
Lippe-Detmold	175	32,059	183
Free Cities—Lubeck	447	111,135	249
Bremen	113	52,158	461
Hamburg	101	122,407	1,212
Crown-lands of Alsace-Lorraine	162	338,074	2,087
Total	5,715	1,549,459	271
Adding the coast-harbors, &c., and the area is		213,020	192
		214,711	

The nationalities of the population are stated as follows: Poles, 2,500,000; French, 270,000; Lithuanians, 150,000; Tcherkin, 150,000; Danes, 150,000; Wends, 140,000; the remainder are Germans.

In regard to religion, 25,549,781, or 62.2 per cent., are Evangelical Lutheran; 14,851,455, or 36.3 per cent., are Catholics; 512,069, or 1.2 per cent., are Jews. A smaller number profess other forms of belief.

Of the total population, 20,149,800 are males, and 20,903,800 females, the ratio of the sexes being as 100 to 103.8. The proportion of individuals of the "productive" and "non-productive" ages is as follows:

	Population.		
	Percent.	Percent.	Percent.
Total population	31.1	63.6	2.3
Males.....	34.1	63.1	2.2
Females	33.6	64.0	2.4

The average annual number of marriages, births, and deaths, during eighteen years, in Prussia, Austria, England, and France, were as follows :

	Countries.		
	Marriages, per 1,000 souls.	Births, per 1,000 souls.	Deaths, per 1,000 souls.
Prussia	8.41	38.99	28.40
Austria.....	8.56	40.17	31.99
England	8.37	34.67	24.43
France	7.86	26.33	24.02

The population has doubled in fifty years, and has increased 150 per cent. in eighty years, though depleted by emigration at an accelerating rate during the past and current generation. About 2,700,000 have settled in the United States, including 133,141 in 1873.

The percentages of married, single, widowed, and divorced were as follows:

	Condition.		
	Total population.	Males.	Females.
Married	Percent.	Percent.	Percent.
Widowed	51.2	52.3	50.1
Single	8.6	5.3	11.7
Divorced.....	40.0	42.2	37.9
	0.2	0.2	0.3

There is a marked tendency in the population to forsake the country and to gather into cities and towns. In Prussia each recurring census had shown some increase in the agricultural population up to 1867, when, for the first time, a positive decrease was shown in all except the factory-districts. The growth of cities has been enormous. In forty years Berlin has expanded her population from 249,000 to 825,000. In Westphalia and on the Rhine a large number of unimportant villages have become cities of 20,000 to 50,000 inhabitants. In the empire there are 32 cities of 50,000 people; 48 ranging from 20,000 to 50,000; 140 from 10,000 to 20,000; 307 from 5,000 to 10,000; 1,052 towns under 5,000. The population of some of the leading cities is as follows: Berlin, 825,389; Hamburg, 240,251; Breslau, 208,025; Dresden, 177,089; Munich, 169,478; Cologne, 129,233; Magdeburg, 114,552; Leipzig, 106,925; Hanover, 104,248; Stuttgart, 91,623, &c.

The number of habitations is stated at 5,263,000; of families, 8,665,000, showing the ratio of dwellings to families to be as 1 to 1.65; the ratio of dwellings to individuals is as 1 to 7.80; of families to individuals as 1 is to 4.74. The number of dwellings per square mile averages 25; of families per square mile, 40. The cities and towns embrace 20 per cent. of the dwellings, 32 per cent. of the families, and 31 per cent. of the people; the remainder are in the country.

TRANSPORTATION AND TRADE.—On the 1st of January, 1872, the German railways embraced 12,118 miles, of which 7,363 belonged to the government. The capital invested, in 1845, was 301,885 thalers, or \$211,219 per mile; in 1860, 480,586 thalers, or \$336,410; in 1870, 553,067 thalers, or \$387,147. The volume of both transportation and travel has rapidly increased during later years. In 1870 the railroads carried nearly 80,000,000 tons of merchandise and 112,889,495 passengers. In 1872 the post-office department transported 569,967,075 letters, 24,552,504 registered letters, 310,042,987 papers, 40,859,443 packages, 14,758,817 and 3,634,502 postal orders, besides 7,215,510 postal travelers. The length of telegraph-wires in operation was 77,839 miles, of which 23,340 were of recent construction. The number of dispatches delivered was 9,626,295, being about one-fourth of the number actually sent over the wires.

The aggregate transactions of the Prussian banks rose from 810,000,000 thalers in 1850 to 9,283,000,000 in 1872. The commercial marine of Germany in 1871 included 179 steamers, 4,943 sail-vessels, with an aggregate tonnage of 1,305,372. During that year 68,155 ships, with a tonnage of 8,435,000, entered the German harbors; the clearances embraced 67,451 vessels and 8,364,000 tons. The imports of Hamburg and Bremen rose from 293,803,000 thalers in 1867 to 473,279,000 thalers in 1871; about three-fourths having been received at Hamburg.

The currency of the empire is now in transition from a silver to a gold standard. By the law of December 4, 1871, a pound of pure gold is to be divided into 139½ pieces, each valued at ten marks. Each mark is divided into 100 pfennige. Nine parts of gold are alloyed with one part of copper. Besides these the old North German thaler and the South German gulden are used, the former running 30 pieces and the latter 522 pieces to the pound of pure silver.

By order of August 17, 1868, the metric system of weights and measures was introduced, but with some modifications. The mile of 7,500 meters, the scheffel of 50 liters, the schoppen of half a liter, and the centner of 50 kilograms were added to the regular denominations, while the names in some cases were translated into German. Half a kilogram is called a pound; 1,000 kilograms, or 2,000 pounds, consti-

tute a ton. Only sealed weights and measures are used in public markets.

Insurance is practiced on a large scale, both by mutual and stock companies. Some life-insurance companies take risks outside the Empire; on the other hand, some thirty foreign companies have agencies in Germany. It is estimated that 500,000 policies are pending, covering an aggregate risk of 440,000,000 thalers, and paying an annual premium of 14,000,000 thalers. Fire-insurance operations are still more extensive; 337 German companies and unions represent an aggregate capital of 7,440,000,000 thalers, while 25 foreign companies take German risks to the amount of 500,000,000 thalers. It is estimated that 14,000,000,000 of thalers' worth of property are insured, at an annual premium of 25,500,000 thalers. Besides the above, there are four companies who insure mirrors at an annual risk of 1,500,000 thalers, and several local and general associations insuring crops against hail; a very large number of live-stock insurance companies do an extensive business, especially in the stock-raising districts. Quite a number of private parties also assume insurance risks.

An important factor in domestic economy was founded, in 1850, by Schulze-Delitzsch under the name of "loan, credit, and consumers' unions." At the close of 1871 there were 1,239 loan and credit unions, with 236,016 members, and 405 consumptive unions, with 22,333 members. At the close of 1872 a combination of trades-unions had been effected, embracing 16 confederated general unions, 282 affiliated local unions, and 13 independent local unions, numbering 18,823 members. This organization embraces about half the trades-unions of the empire.

Mutual-benefit societies and savings-banks are numerous. In Prussia, in 1871, there were 1,865 mutual-benefit societies for independent traders, with 300,917 members, and an income of 387,359 thalers, with a reserve-fund of 1,898,359 thalers. For workmen there were 4,655 funds, with 632,212 members, an income of 1,907,418 thalers, (of which 416,977 thalers came from employers,) and a reserve of 2,316,981 thalers. Savings-banks originated, in 1818, at Berlin. At the close of 1871 they numbered 830, with an aggregate deposit of 192,920,802 thalers, equal to 7.86 thalers *per capita* of the population. The maximum proportion, 25 thalers *per capita*, is found in Westphalia and Schleswig-Holstein; in Posen and Prussia proper it falls below 1 thaler.

MILITARY ESTABLISHMENT.—Military duty is inflexibly required of every able-bodied citizen. The military age is from twenty to thirty-two, seven of which are in the standing army—three years in active service and four in the regular reserve. The remaining five years is passed in the landwehr or embodied militia. The peace-establishment embraces 1 per cent. of the entire population, and actually enrolls 401,659 privates, 17,036 officers, and 3,644 surgeons and enlisting-officers. The artillery consists of 1,200 field-pieces, served by 96,158 horses. The navy includes 3 armored vessels, 2 monitors, 10 corvettes, 2 dispatch-boats, 18 gun-boats, &c. Several armored vessels are in process of construction.

TAXATION.—The expenses of the Empire in 1873 were met in part by 110,505,466 thalers of ordinary and 8,335,023 thalers of extraordinary taxes. Their deficiency was met, first, by the surplus revenue of the post-office department and telegraphs; and, secondly, by direct allotments to the states of the Empire in proportion to population. Since the organization of the empire all internal custom-houses have been abolished, and no restrictions can be placed on the commerce between the states. The customs-union embraces also Luxembourg, though it

does not belong to the empire. The empire has no debt. The state debts amount to 504,500,000 thalers; railroad debts, 589,300,000 thalers; total, 1,093,800,000, or 27 thalers *per capita* of the population. In 1870 Great Britain owed 193 thalers *per capita*; Austria, 48; Holland, 185; France, 80; Russia, 29.

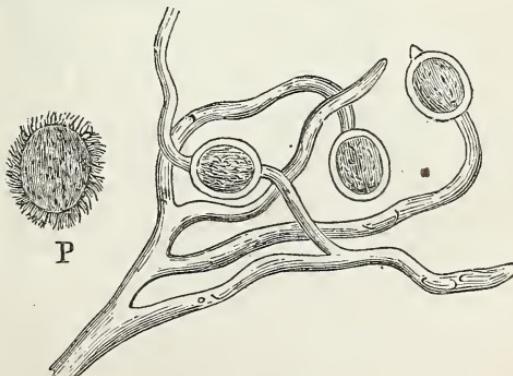
LOCAL GOVERNMENT.—The local government of Germany corresponds very nearly to our county and township organization, the local administrators being elected by ballot. The ancient Teutonic traditions of tribal organization are still an important element in German political life. This local government controls the police, sanitary, school, and pauper services. Each district must provide for its own paupers, either native or foreign.

EDUCATION.—The educational system is thorough and compulsory. In 60,000 public schools there are 6,000,000 pupils. For higher instruction there are 330 gymnasia, 14 real gymnasia, 214 progymnasia and latin-schools, and 485 real and high schools, with an aggregate attendance of 177,379 pupils. There were also 21 universities, with four faculties, theology, law, medicine, and philosophy. In some a fifth, that of political economy, is maintained. The instructors of all grades numbered, in 1872-'73, 1,620; the students, 17,858. In technical culture, 10 polytechnic schools, with 360 teachers, gave instruction to 4,500 pupils. Other special schools are maintained, including 45 obstetric schools; art-schools, musical conservatories, commercial colleges, navigation and trade schools, &c., in great numbers. In Prussia, Bavaria, and Saxony there are 14 mining-schools, a military academy, an artillery school, and several cadet-schools, riding-schools, &c.

MICROSCOPIC OBSERVATIONS.

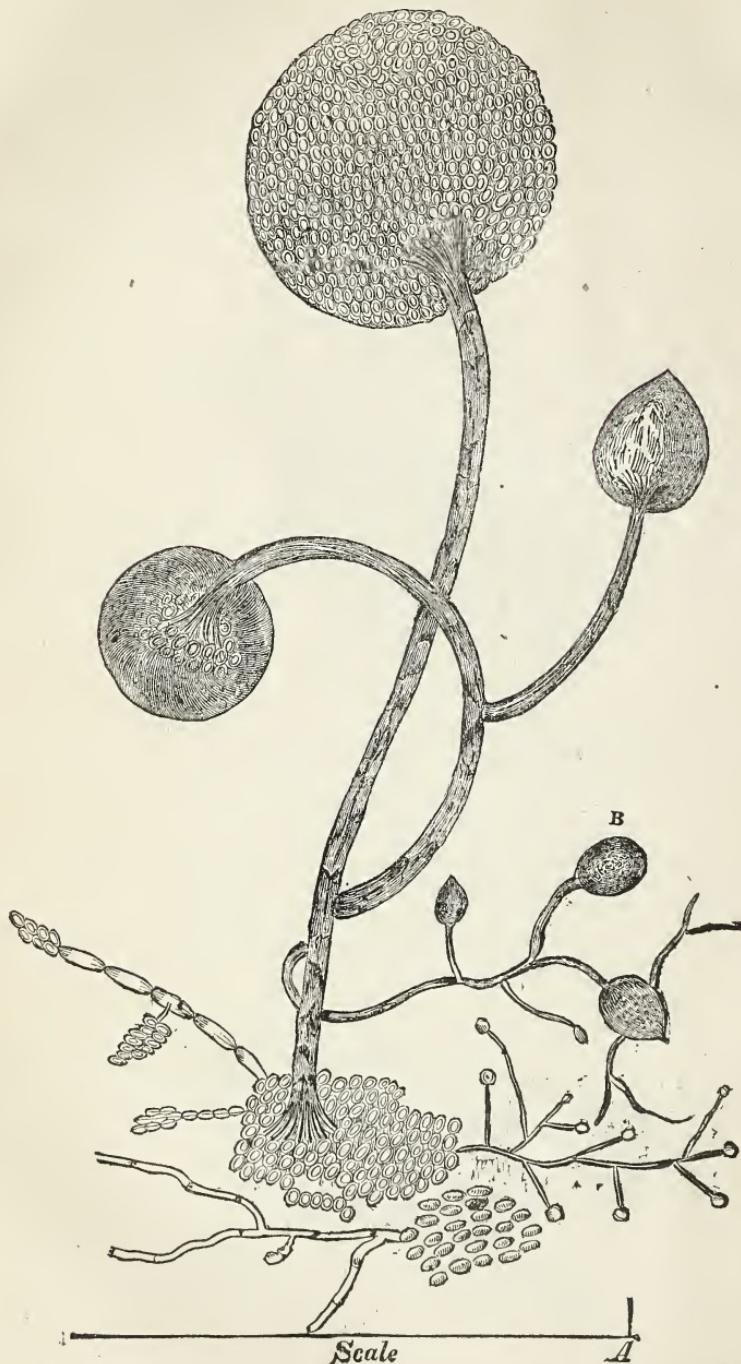
BY THOMAS TAYLOR, MICROSCOPIST.

In Hardwicke's Science Gossip for October 1, 1872, page [225], is illustrated a fungus, which was first discovered by Doctor Payen growing among the mycelium in the intercellular passage of spent potatoes affected with rot. Fig. 3 presents the illustration given in that journal.



This fungus has been named by Montague *Artotrogus hydnosporus*, although considered by Berkeley and others to be probably a secondary form of fruit (oospores) of the potato-fungus itself. In order to test the matter more fully I placed a portion of a rotting potato affected with

Peronospora infestans in a clear glass jar, and allowed it to ferment. After the lapse of two months a mold, or mildew, formed on its sur-



face. Placing a small portion of this on a glass slide six inches long by two inches wide I inclosed the latter in a jar containing about an ounce of distilled water, and secured its contents with a ground-glass

stopper. I examined it in its different stages of growth, every twenty-four hours, for several weeks. I have repeated these experiments many times during the last six months, always getting the same general result. The figure illustrates the various stages of growth. The fruit B represents the thousandth of an inch, and the scale A one $\frac{1}{100}$ of an inch. The color of the fruit resembles that of matted silver, rich and somber. The principal fruit-stalk, although represented as branched, is not always so in nature. The stalk is frequently found supporting but one head or fruit. The stalks, when fully ripe, are cellular and of a peculiar structure.

In order to ascertain whether a rotting potato, which had decayed from ordinary fungus fermentation, *Penicillium glaucum*, would produce, under similar treatment, a fungus like Fig. 3, or one of a similar type, I instituted a second set of experiments, using a mush made directly from healthy potatoes. The experiments were conducted in the same manner as those already described, extending over a period of six months. The result was that the pulp of the healthy potato invariably produced *Penicillium glaucum*, while that of potatoes infested with *Peronospora infestans*, with a like uniformity, produced the fungus represented by Fig. 4.

It would seem from experiments that the fungus *Artotrogus hydnosporus* is in some way peculiarly connected with *Peronospora infestans*, or "potato rot;" and during its highest stages of fermentation it would also seem to have the power of destroying the germ of the fungus *Penicillium glaucum*.

One of my early experiments with rotting potatoes consisted in placing some of those affected with the fungus *Peronospora infestans* in a saturated solution of sulphate of copper. After a lapse of four weeks I removed the affected potatoes from the copper solution and placed them in pure water, changing the latter every twenty-four hours, as long as the liquid at the end of that time had the bluish tinge indicating the presence of copper in solution. I next placed the potatoes in separate glass jars. After the lapse of several weeks the water became slightly blue in color still showing the presence of sulphate of copper. To my surprise the mycelium of a fungus had grown in profusion on the potato, its branches extending upward to the surface of the liquid. In the course of the next two months little white specks appeared on the surface. These specks ultimately developed into distinct circular forms, resembling a lady's low-crowned hat, having a thickness of about one-eighth of an inch at the center of the crown, with a diameter of about half an inch, and a pure snow-white color. All these disks finally united, covering the surface of the liquid with a felt-like substance, which apparently derived its sustenance from the potato, through the fungus branches above referred to. On examining portions of this substance under a power of three hundred diameters I found it to consist of white *Penicillium* thickly matted together and in full fruitage.

Sulphate of copper in solution has been frequently recommended as a reliable antidote to fungoid growth. In the present experiments it evidently destroyed the *Peronospora infestans*, but did not destroy the *Penicillium*, the germs of which must have existed in the potato, as well as those of the former fungus; though it has already been seen that where *Peronospora infestans* produced putrefaction the *Penicillium* never made its appearance, its germs having probably been destroyed by the more powerful fungus. It may be remarked, in conclusion, that the failure of the solution of sulphate of copper to destroy *Penicillium* renders it probable that it would prove ineffective as an antidote to other forms of the fungi belonging to the family *Muscédines*.

FACTS FROM VARIOUS OFFICIAL SOURCES.

TEA PRODUCTION IN BENGAL, BRITISH INDIA.—In the entire presidency about 800,000 acres are “held for purposes connected with the tea industry.” Of this only about 70,000 acres are occupied with tea-plants in bearing. This portion is subdivided into “mature-plant land” and “immature-plant land.” The average yield of the mature-plant land is about 237 pounds per acre; that of the immature, about 80 pounds; of the whole, 208 pounds per acre.

The total production is about 15,000,000 pounds. The following are the statistics for the several “divisions”:

Divisions.	Taken for tea-culture.	Cultivated.	Under mature plants.	Under immature plants.	Total yield in 1872.
Assam	Acres. 364,990	Acres. 26,853	Acres. 21,890	Acres. 4,963	Pounds. 6,150,764
Decca	281,174	26,751	23,031	3,720	5,296,169
Cooch Behar.....	133,034	14,639	10,181½	4,457½	2,955,926
Chittagong	23,890	1,203	1,034	196	204,112
Chota Nagpore.....	1,504	894	835	59	53,200
Total.....	804,582	70,367	56,971½	13,395½	14,660,171

The above statistics for the Assam division are exclusive of those for the tea-gardens of Luckimpore, (not being reported;) and of the 6,150,764 pounds reported, 1,500,000 pounds were produced by the Assam Company, which was the first one organized for producing tea in Bengal, and which had to experiment six or seven years before it began to receive much encouragement in profitable returns.

A NOVEL THEORY.—The following dispatch was sent by A. N. Duffre, the consul of the United States at Cadiz, Spain, and communicated to this Department by the Secretary of State. It is now published because of the novelty of the idea—that the same influence which operates to govern the ebb and flow of the tides, produces a like corresponding effect upon the flow of sap in growing vegetation :

A Madrid paper of respectable standing, entitled *La Epoca*, has published, in its issue of the 12th instant, an article signed by Don Luis Alvarez Alvistur, on the influence of the tides on vegetation, in which the writer announces a new theory, based on the results obtained during fourteen years devoted to experimental research, by an enlightened landed proprietor of Lorca, in the province of Murcia.

The theory adopted was the direct influence of the tide on the circulation of the sap, and its experimental application after determining the meridian of the estate and tabulating the corresponding hours of ebb and flow, has been the felling and lopping of forest-trees solely during the hours pertaining to the ebbing tide. The results are stated to have been conclusive, the decay annually observable formerly in some portion of the timber having ceased completely in the many years that have elapsed during the application of the new principle. The system was then applied to an olive-grove, the yield of which had ceased to cover the annual costs of culture, by removing every dried portion of the trees exclusively during ebb tide. The result is stated to have been the complete transformation of the grove, a great development of foliage, and abundant crops.

Equally admirable results ensued from the similar treatment of orange, lime, and other fruit trees, which were thenceforth unaffected by larvae or other plagues which smote adjoining orchards; and finally the vineyard of the Lorca landlord, though surrounded by those of other proprietors which were devastated by the oidium which appeared in the district at the period when the new system was first essayed, have never exhibited the faintest trace of the presence of the malady.

It is likewise asserted that experiments made with equal sets of silk-worms, respectively fed on leaves of trees treated by the ordinary and by the new system, the leaves

under the new plan being gathered exclusively at the hours ~~conducive~~ to the ebb tide, resulted most decidedly in favor of the latter.

Though thoroughly incompetent to judge the merits of the ~~the~~ ^{new} ~~plan~~ added to the many which have contended for the solution of the mystery attending vegetable life, I have still not hesitated in calling your attention to it, impressed by the proclamation of facts, which can easily be tested, encouraged by the hope that some benefit may accrue to the agricultural interests even from the mere experimental and scientific investigation which it may induce or foster.

LIVE STOCK IN DENMARK.—The demands of British markets have stimulated the raising of live stock as a regular branch of Danish agricultural industry. The annual export is rapidly increasing, while efforts are being made to conduct the business upon scientific and economic principles. In 1873 the Danish Agricultural Society held two national expositions of fattened animals, one for the islands three days, commencing May 12, and another for the Peninsula of Jutland, May 26 and 27; the former at Copenhagen and the latter at Aarhuus, the leading points of live-stock exportation. The success of the exposition of 1873 has emboldened the society to make still greater efforts.

GRASS IN MISSISSIPPI.—Mr. H. O. Dixon, of Jackson, Miss., contributes his experience with grasses:

My experiments with clover and grass have thus far been so successful as to induce me to extend the area, the past fall and winter, to thirty acres. All of this appears to be doing well, although necessarily much retarded by the excessive and continuous rains. My old clover is now (May 9) knee-high and blooming, having been pastured during the winter, until the 10th of March, by my breeding-ewes. I also have a piece of clover now in its fourth year, which has been closely pastured the two past winters, to the middle of March, by cattle and mules. That is apparently as far from giving out as at first. It is now over a foot high. The orchard grass, on good high land, is very fine, and is now throwing up seed-heads. The red-top or herd's-grass (not timothy) does well on both high and low lands. It is now about a foot high. All these grasses have been severely tested by drought, as intense as ever visits this region, without the least appearance of failure; so that I can truthfully and knowingly assert that this part of Mississippi is well adapted to the grasses named above.

Mr. Dixon calls attention to the fact that by herd's-grass he means red-top, (*Agrostis vulgaris*,) and not timothy, (*Phleum pratense*,) which is the more reputable synonym for herd's-grass in the North. While he has been very successful with red-top, he has found timothy wholly unsuited to that climate.

FLAX-CULTURE IN MINNESOTA.—The growth of this textile plant is rapidly increasing in Minnesota. In Watonwan County 8,000 acres have been sown and the crop looks finely. In Stearns County an experimental crop realized large results, and, in consequence, the acreage has been increased five-fold. It is a third more profitable than wheat.

MARKET-PRICES OF FARM-PRODUCTS.

The following quotations represent the state of the market, as nearly as practicable, at the beginning of the month.

Articles.	May.	June.
NEW YORK.		
Flour, superfine State per barrel..	\$5 85 to \$6 05	\$5 25 to \$5 75
extra State do	6 30 to 6 75	6 00 to 6 60
superfine western do	5 85 to 6 05	5 25 to 5 75
extra to choice western do	6 15 to 11 00	5 85 to 11 00
common to fair southern do	6 40 to 7 30	6 15 to 7 00
good to choice southern do	7 35 to 11 00	7 05 to 11 00
Wheat, No. 1 spring per bushel..	1 61 to 1 65	1 50 to 1 51
No. 2 spring do	1 52 to 1 58	1 45 to 1 48½
winter, red, western do	1 63 to 1 66	1 50 to 1 55
winter, amber, western do	1 66 to 1 70	1 56 to 1 58
winter, white, western do	1 55 to 1 87	1 50 to 1 75
Rye do	— to 1 13	1 04 to 1 13
Barley do	— to 1 50	— to 1 80
Corn do	83 to 88	76 to 81½
Oats do	63 to 68	62 to 68
Hay, first quality per ton	24 00 to 33 00	25 00 to 31 00
second quality do	20 00 to 21 00	— to 23 00
Beef, mess per barrel..	10 00 to 12 00	10 00 to 12 00
extra mess do	12 50 to 14 00	12 50 to 14 00
Pork, mess per barrel..	16 90 to 17 05	17 60 to —
extra prime do	14 25 to 14 62½	14 75 to 15 00
prime mess do	15 25 to 15 75	15 50 to 16 00
Lard per pound..	16½ to 10¾	11 ¾ to 11 ½
Butter, western do	22 to 27	20 to 26
State dairy do	28 to 38	24 to 30
Cheese, State factory do	15 to 17½	— to —
western factory do	— to —	— to —
Cotton, ordinary to good ordinary do	13 7/8 to 16	15 to 16 ½
low middling to good middlin'g do	16 7/8 to 19 3/8	17 1/2 to 20
Sugar, fair to good refining do	7 ¾ to 8	7 ½ to 8 ½
prime refining do	8 ½ to —	8 ½ to —
Tobacco, lugs do	4 ½ to 6 ¼	4 ½ to 6 ½
common to medium leaf do	6 to 8 ½	6 to 8 ½
Wool, American XXX and picklock .. do	62 to 70	53 to 68
American X and XX do	45 to 60	47 to 57
American, combing do	52 to 60	50 to 65
pulled do	25 to 50	33 to 52
California, spring-clipped do	19 to 35	23 to 37
California, fall-clipped do	20 to 27	20 to 27
BOSTON.		
Flour, superfine, western per barrel..	5 50 to 6 00	5 00 to 5 50
western extras do	6 50 to 7 50	5 75 to 7 25
western choice do	8 00 to 10 50	7 75 to 10 00
southern extras do	6 50 to 7 00	5 75 to 6 00
choice Baltimore do	9 00 to 10 50	8 75 to 10 00
Wheat per bushel..	1 50 to 1 85	1 50 to 1 85
Rye do	— to 1 20	— to 1 20
Barley do	— to —	— to —
Corn do	92 to 95	82 to 86
Oats do	62 to 70	62 to 70
Hay, eastern and northern per ton	12 00 to 27 00	14 00 to 29 00
western choice do	24 00 to 25 00	25 00 to 27 00
Beef, western mess per barrel..	11 00 to 12 00	12 00 to 13 50
western mess extra do	13 00 to 14 00	14 00 to 14 50

Market-prices of farm-products—Continued.

Articles.	May.	June.
BOSTON—Continued.		
Pork, prime per barrel	\$14 50 to \$15 00	\$15 00 to \$15 50
mess do	17 50 to 18 00	18 50 to 19 00
Lard per pound	10 $\frac{1}{2}$ to 11 $\frac{1}{4}$	11 $\frac{1}{2}$ to 12
Butter, New York and Vermont do	28 to 37	23 to 28
western do	25 to 33	22 to 26
Cheese, New York and Vermont do	15 to 17 $\frac{1}{2}$	15 $\frac{1}{2}$ to 16
western factory do	14 to 17	15 to 15 $\frac{1}{2}$
Sugar, fair to good refining do	7 $\frac{1}{4}$ to 8 $\frac{1}{2}$	7 $\frac{1}{4}$ to 8
Tobacco, lugs do	6 $\frac{1}{2}$ to 8	6 $\frac{1}{2}$ to 8
common to medium leaf do	8 $\frac{1}{2}$ to 10	8 $\frac{1}{2}$ to 10
Cotton, ordinary to good ordinary do	13 to 16 $\frac{1}{2}$	15 to 17
low middling to good middling do	16 $\frac{1}{2}$ to 19 $\frac{1}{2}$	17 $\frac{1}{2}$ to 21
Wool, Ohio and Pennsylvania do	49 to 60	49 to 60
Michigan do	45 to 53	45 to 53
other western do	44 to 52	44 to 52
pulled do	25 to 57	25 to 56
combing-fleece do	60 to 62	57 to 62
California do	18 to 38	18 to 38
Texas do	20 to 35	20 to 35
PHILADELPHIA.		
Flour, superfine per barrel	5 00 to 5 50	4 75 to 5 25
Flour, Pennsylvania extra do	5 75 to 6 50	6 00 to _____
Pennsylvania family and fancy do	6 75 to 8 25	_____ to 8 75
western extra do	6 75 to 7 00	5 50 to 6 75
western family do	7 50 to 8 50	6 25 to 9 75
Wheat, winter, red per bushel	1 50 to 1 63	1 45 to 1 55
winter, amber do	1 50 to 1 80	1 60 to 1 68
winter, white do	1 90 to _____	1 65 to 1 69
spring do	1 45 to _____	1 45 to 1 49
Rye do	98 to 1 00	98 to _____
Barley do	_____ to _____	_____ to _____
Corn do	84 to 90	82 to 89
Oats do	62 to 65	61 to 67 $\frac{1}{2}$
Hay, fresh, baled per ton	23 00 to 25 00	24 00 to 26 00
common to fair shipping do	21 00 to 23 00	21 00 to 23 00
Beef, western mess per barrel	8 00 to 10 00	8 00 to 10 00
extra mess do	9 00 to 12 00	9 00 to 12 00
Warthman's city family do	16 00 to _____	17 00 to _____
Pork, mess do	17 00 to 17 25	18 00 to 18 25
prime mess do	16 00 to _____	16 00 to 16 50
prime do	14 50 to _____	15 00 to _____
Lard per pound	10 $\frac{1}{2}$ to 13	11 $\frac{1}{4}$ to 15
Butter, choice middle State do	33 to 40	28 to 33
choice western do	35 to 36	25 to 28
Cheese, New York factory do	16 $\frac{1}{2}$ to 17 $\frac{1}{2}$	15 to 17
Ohio factory do	16 to 16 $\frac{1}{2}$	12 to 15 $\frac{1}{2}$
Sugar, fair to good refining do	7 $\frac{1}{2}$ to 7 $\frac{3}{4}$	7 $\frac{1}{2}$ to 7 $\frac{3}{4}$
Cotton, ordinary to good ordinary do	13 to 15 $\frac{1}{2}$	15 to 16 $\frac{1}{2}$
low middling to good middling do	16 $\frac{1}{2}$ to 18 $\frac{1}{2}$	18 to 20 $\frac{1}{2}$
Wool, Ohio X and XX do	56 to 58	53 to 58
Ohio combing do	60 to 63	57 $\frac{1}{2}$ to 65
pulled do	47 to 49	46 to 55
unwashed, cloth'g and comb'g do	21 to 37 $\frac{1}{2}$	22 to 45
BALTIMORE.		
Flour, superfine per barrel	5 00 to 5 50	4 50 to 5 25
extra do	5 75 to 7 50	5 50 to 6 50
family and fancy do	7 25 to 10 50	6 75 to 10 00

Market-prices of farm-products—Continued.

Articles.	May.	June.
BALTIMORE—Continued.		
Wheat, white	per bushel.. \$1 60	to \$1 85
amber	do	1 60 to 1 80
red	do	1 50 to 1 60
Rye	do	85 to 89
Corn, white, southern	do	80 to 84
yellow, southern	do	80 to 83
Oats, southern	do	61 to 66
western	do	59 to 63
Hay, Pennsylvania	per ton	17 00 to 20 00
Maryland	do	20 00 to 24 00
western	do	19 00 to 20 00
Beef, Baltimore mess	per barrel	15 00 to 20 00
extra	do	23 00 to 25 00
Pork, mess	do	16 50 to 16 75
Lard	per pound	9½ to —
Butter, western	do	28 to 38
eastern	do	— to 42
Cheese, eastern cutting	do	16 ½ to 17
western cutting	do	16 ½ to 17
Sugar, fair to good refining	do	7 ½ to 7 ¾
Tobacco, lugs	per cental	5 00 to 8 00
common to medium, leaf	do	7 00 to 8 50
Cotton, ordinary to good ordinary	per pound	13 to 14 ½
low middling to middling	do	15 ½ to 16 ½
Wool, fleece, com. to fine	per pound	45 to 50
tub-washed	do	55 to 60
unwashed	do	35 to 38
pulled	do	35 to 40
CINCINNATI.		
Flour, superfine	per barrel	5 00 to 5 50
extra	do	6 20 to 6 50
family and fancy	do	6 60 to 8 00
Wheat, red winter	per bushel	1 43 to 1 48
hill winter	do	1 45 to 1 48
white winter	do	1 50 to 1 60
Rye	do	1 08 to 1 10
Barley	do	1 40 to 1 50
Corn	do	66 to —
Oats	do	50 to 57
Hay, baled, No. 1	per ton	15 00 to 18 00
lower grades	do	9 00 to 12 00
Beef, plate	per barrel	— to —
Pork, mess	do	16 70 to 17 00
Lard	per pound	10 to 10 ¼
Butter, choice	do	32 to 36
prime	do	27 to 30
Cheese, factory	do	15 to 16
pine-apple	do	— to —
Sugar, New Orleans, fair to good	do	8 ½ to 9
prime to choice	do	9 ½ to 9 ¾
Tobacco, lugs	do	6 to 20
leaf	do	8 to 29 ¾
Cotton, ordinary to good ordinary	do	13 ¾ to 15 ½
low middl'g to good middl'g	do	16 ½ to 17 ¾
Wool, fleece-washed	do	45 to 47
tub-washed	do	48 to 50
unwashed, clothing	do	30 to 32
unwashed, combing	do	33 to 35
pulled	do	38 to 40

Market-prices of farm-products—Continued.

Articles.

May.

June.

CHICAGO.

Flour, white winter, fair to good..per barrel..	\$7 00	to	\$8 00	\$6 75	to	\$8 00	
choice.....do.....	8 50	to	9 00	8 00	to	9 00	
red winter	5 50	to	7 00	5 50	to	7 00	
medium to fancy, spring extra...do.....	5 37½	to	10 00	5 25	to	10 00	
spring, superfine.....do.....	3 50	to	4 87½	3 50	to	4 87	
Wheat, No. 1 spring	1 29	to	1 33	1 20½	to	1 21	
No. 2 spring	1 28½	to	—	1 16	to	1 16½	
No. 3 spring	1 19½	to	—	1 13	to	—	
Corn, No. 2	63½	to	66½	56½	to	56½	
Oats, No. 2	46½	to	47	43½	to	45	
Barley, No. 2	1 60	to	1 65	1 40	to	1 45	
Rye, No. 2	91	to	92	90	to	92	
Hay, timothy	16 00	to	18 50	15 00	to	19 00	
prairie	14 00	to	15 00	8 00	to	12 00	
Beef, mess	9 75	to	10 00	10 75	to	11 00	
extra mess	10 75	to	11 00	11 75	to	12 00	
Pork, mess	16 45	to	—	17 30	to	—	
prime mess	—	to	—	—	to	—	
extra prime	—	to	—	—	to	—	
Lard	per cental..	10 00	to	10 27½	10 60	to	—
Butter, choice to fancy	per pound..	33	to	36	23	to	25
medium to good	do.....	27	to	30	18	to	22
Cheese, New York factory	per pound..	15	to	15½	14	to	15
Ohio and western factory	do.....	15	to	15½	13	to	14½
Sugar, New Orleans, prime to choice..do.....	8½	to	9½	9½	to	9¾	
common to fair..do.....	7½	to	8½	7½	to	8½	
Wool, tub-washed	do.....	48	to	55	48	to	52
fleece-washed	do.....	35	to	47	35	to	42
unwashed	do.....	25	to	33	25	to	32
pulled	do.....	35	to	40	—	to	—

SAINT LOUIS.

Flour, spring	per barrel..	—	to	5 20
winter	do.....	—	to	8 50
Wheat, red winter	per bushel..	1 38	to	1 46
white winter	do.....	1 40	to	1 46
spring	do.....	—	to	1 05
Corn	do.....	68	to	75½
Rye	do.....	96	to	98
Oats	do.....	51	to	52
Barley	do.....	1 20	to	1 50
Hay, timothy	per ton..	20 00	to	23 00
Beef, prime mess	per barrel..	—	to	—
mess	do.....	12 50	to	13 00
extra mess	do.....	—	to	13 50
Lard	per pound..	10	to	10½
Butter, choice	do.....	31	to	32
inferior grades	do.....	20	to	29
Cheese, Ohio and N. W. factory	do.....	16	to	16½
New York factory	do.....	16	to	16½
Sugar, New Orleans, common to fair..do.....	8½	to	—	—
prime to choice ..do.....	9½	to	9¾	—
Cotton, ordinary to good ordinary ..do.....	—	to	—	—
low middling to good mid..do.....	—	to	—	—
Wool, tub-washed	do.....	48	to	53
unwashed, combing	do.....	33	to	35
fleece-washed	do.....	40	to	45

NEW ORLEANS.

Flour, superfine	per barrel..	4 80	to	5 00
extra	do.....	5 25	to	6 75

—	to	—
5 00	to	6 50

Market-prices of farm-products—Continued.

Articles.	May.	June.
NEW ORLEANS—Continued.		
Flour, choice to fancy.....per barrel..	\$7 00 to \$9 50	\$6 75 to \$9 50
Corn, white .....per bushel..	88 to 90	70 to _____
yellow	88 to _____	70 to _____
Oats.....do.....	60 to 62	58 to 60
Hay, choice .....per ton	23 00 to _____	23 00 to 25 00
prime	20 00 to _____	20 to _____
Beef, Texas .....per barrel..	12 00 to 12 25	12 00 to 12 25
Philadelphia	16 00 to 16 25	16 00 to 16 25
Fulton Market.....half barrel..	12 50 to _____	12 00 to _____
western	9 00 to 9 25	9 00 to 9 25
Pork, mess	17 75 to 18 00	18 75 to _____
Lard	10 to 11	12 $\frac{1}{4}$ to 12 $\frac{3}{4}$
Butter, choice Goshen	38 to 40	36 to 38
western	33 to 40	28 to 30
Cheese, choice western factory	17 to _____	15 to 15 $\frac{1}{2}$
New York cream	19 to 20	18 to _____
Sugar, fair to fully fair	7 $\frac{1}{2}$ to 8 $\frac{1}{2}$	8 $\frac{1}{2}$ to 8 $\frac{3}{4}$
prime to strictly prime	8 $\frac{3}{4}$ to _____	9 to _____
clarified, white and yellow	9 $\frac{1}{2}$ to 10 $\frac{1}{2}$	10 to _____
Tobacco, lugs	4 to 4 $\frac{1}{2}$	4 to 6
low leaf to medium leaf	6 $\frac{1}{2}$ to 8	6 $\frac{1}{2}$ to 8
Cotton, ordinary to good ordinary	13 $\frac{1}{2}$ to 15 $\frac{1}{2}$	13 $\frac{1}{2}$ to 15 $\frac{1}{2}$
low middling to good mid.....do.....	16 $\frac{3}{4}$ to 17 $\frac{1}{2}$	16 $\frac{3}{4}$ to 18 $\frac{3}{4}$
Wool, lake	_____ to _____	32 $\frac{1}{2}$ to 34
SAN FRANCISCO.		
Flour, superfine	4 50 to 4 75	4 50 to 4 75
extra	5 00 to 5 25	5 00 to 5 25
family and fancy	5 50 to 5 75	5 50 to 5 75
Wheat, California	1 75 to 1 95	1 65 to 1 85
Oregon	1 75 to 1 95	1 65 to 1 85
Barley	1 60 to 1 90	1 50 to 1 85
Oats	1 55 to 1 65	1 50 to 1 75
Corn, white	1 65 to 1 75	1 90 to 2 00
yellow	1 65 to 1 75	1 95 to 2 00
Hay, State	14 50 to 19 00	10 00 to 17 00
Beef, mess	8 50 to 9 00	8 50 to 9 50
family mess	9 00 to 10 00	9 00 to 10 00
Pork, mess	18 50 to 19 00	18 00 to 19 00
prime mess	17 00 to 17 50	18 00 to 18 50
Lard	11 to 13	11 $\frac{1}{4}$ to 12 $\frac{1}{2}$
Butter, overland	15 to 20	15 to 20
California	25 to 28	25 to 30
Oregon	15 to 20	15 to 20
Cheese	12 $\frac{1}{2}$ to 16	12 $\frac{1}{2}$ to 16
Wool, native	14 to 16	15 to 17
California	20 to 25	20 to 28
Oregon	20 to 25	20 to 28

LIVE-STOCK MARKETS.

NEW YORK.	May.	June.
Cattle, extra beefes	per cental..	to \$12 75
good to prime	do.....	\$11 50 to _____
common to fair	do.....	10 00 to _____
milch-cows.....	per head..	_____ to _____
calves	per cental..	4 75 to 8 00
Sheep, good to extra	do.....	5 00 to 8 50
Swine, common to fair	do.....	7 50 to 7 50

Live-stock markets—Continued.

Articles.	May.	June.
BOSTON.		
Cattle, choice per cental..	— to —	\$7 37 to —
extra do	— to —	7 00 to \$7 25
first quality do	— to —	6 00 to 6 50
second quality do	— to —	500 to 5 50
third quality do	— to —	4 25 to 4 75
working-oxen per pair	— to —	100 00 to 250 00
milch-cows with calves per head	— to —	35 00 to 95 00
yearlings do	— to —	10 00 to 18 00
Sheep, extra do	— to —	6 00 to 8 75
inferior grades do	— to —	4 00 to 6 00
Swine per cental..	— to —	6 00 to 6 50
BALTIMORE.		
Cattle, best beeves per cental..	\$6 50 to \$7 25	6 62 to 7 45
first quality do	5 62 to 6 50	5 75 to 6 62
medium do	5 25 to 5 62	5 25 to 5 75
ordinary do	4 50 to 5 25	4 50 to 5 25
general average do	6 50 to —	6 62 to —
most of the sales between do	6 00 to 7 00	6 00 to 7 00
Sheep do	6 00 to 8 00	4 00 to 6 00
Swine, corn-fed do	7 50 to 8 25	7 50 to 8 25
CINCINNATI.		
Cattle, good to prime butchers'		
steers per cental..	— to —	5 00 to 5 75
common to good medium do	— to —	4 00 to 4 75
milch-cows per head	— to —	30 00 to 65 00
Sheep, common per cental..	— to —	3 75 to 4 50
good to prime butchers' do	— to —	— to —
Swine, shipping grades do	— to —	5 25 to 5 80
good to prime butchers' do	— to —	— to 6 15
CHICAGO.		
Cattle, extra-graded steers, 1,400		
to 1,500 pounds per cental..	6 10 to 6 40	6 15 to 6 40
choice beeves, 3 to 5 years		
old, 1,250 to 1,450 pounds do	5 60 to 5 85	5 90 to 6 90
good beeves, 1,200 to 1,300		
pounds do	5 25 to 5 50	5 40 to 5 70
medium grades, 1,150 to		
1,300 pounds do	4 75 to 5 10	4 50 to 5 50
lower-grades, natives do	3 00 to 4 75	3 00 to 5 25
Texans, choice corn-fed do	4 75 to 5 25	5 25 to 5 65
Texans, north-wintered do	4 00 to 4 50	4 25 to 5 00
Texans, through droves do	— to —	3 00 to 4 00
milch-cows do	— to —	— to —
veal calves do	— to —	— to —
Sheep, poor to medium do	4 50 to 6 50	3 50 to 4 50
good to choice do	6 75 to 8 25	6 00 to 7 25
Swine, good to extra do	5 50 to 5 90	5 45 to 5 80
inferior to medium do	4 50 to 5 00	4 75 to 5 40
SAINT LOUIS.		
Cattle, choice native steers, 1,300		
to 1,600 pounds per cental..	5 75 to 6 00	6 00 to 6 25
prime second class, 1,150		
to 1,400 pounds do	5 25 to 5 50	5 00 to 5 75

Live-stock markets—Continued.

Articles.	May.	June.
SAINT LOUIS—Continued.		
Cattle, good third-grade, 1,050 to 1,300 pounds	\$4 50	to \$4 75
per cental..		
fair butchers' steers, 1,000 to 1,200 pounds	4 20	to 4 25
do	2 75	to 5 00
inferior native grades	4 25	to 6 10
Texans and Cherokees, corn-fattened	3 75	to 4 75
do	2 75	to 3 50
inferior	4 25	to 6 10
Sheep.....	4 50	to 5 45
Swine	30 00	to 60 00
Horses, plug.....	80 00	to 90 00
street-car horses.....	85 00	to 100 00
good work-horses	100 00	to 140 00
driving horses	125 00	to 165 00
heavy draught-horses	50 00	to 100 00
Mules, 14 to 15 hands high.....	115 00	to 165 00
15 to 16 hands high.....	175 00	to 200 00
extra		
NEW ORLEANS.		
Cattle, Texan beeves, choice.....	40 00	to 55 00
first quality	35 00	to 40 00
second quality	20 00	to 28 00
western beeves.....	10 00	to 12 50
milch-cows	35 00	to 100 00
calves	7 00	to 10 00
Sheep, first quality.....	4 00	to 5 00
second quality	3 00	to 4 00
Swine	5 00	to 7 50

FOREIGN MARKETS.

WHEAT.—The spring in Europe has been, on the whole, favorable to the wheat crop. An early harvest was confidently anticipated, but the succession of cold days and frosty nights, together with lack of rain, amounting almost to drought in some regions, about the middle of May, destroyed that hope. In France wheat in many places began to turn yellow, and in other localities to show signs of rust. The exhaustion of home stocks of wheat in Europe, caused by two scanty harvests, becomes more painfully apparent as each week develops its results. Although the increased facilities of ocean transport, and the enhanced efficiency of the Suez Canal route, places England in closer relations with the wheat-producing regions of the world, she yet fails to realize any important relief from the terrible pressure of short crops. With a demand for foreign wheat, absorbing not less than a million quarters per month, she finds her supplies constantly shortening. In the four weeks ending May 9 her actual receipts from abroad were but 595,000 quarters. The stocks in London were but 203,160 quarters, or less than one month's supply for the metropolis alone, with its three and one-third millions of hungry mouths. English wheat is almost entirely exhausted, the small supplies in first hands being held by large and wealthy farmers, holding on for maximum prices. The facts now show that 1873 was a short wheat year throughout the world. The yield of South Australia is esti-

mated at 500,000 quarters, only two-thirds of the previous crop of the colony. In Hungary the high prices of flour caused such a general disuse of that article of diet as to extort a concession of 1 shilling per quarter on wheat. Fine wheat had begun to come to Odessa in considerable quantities, but was met by an ample demand at high prices. French, Belgian, and Dutch country markets gave signs of close exhaustion; while Switzerland and Italy are heavy importers of wheat, and Germany also feels the stress. The Indian famine adds its depressing influence. All indications seem to point to a scramble for breadstuffs in Europe before the coming harvest. The weekly deliveries in London during the last week in May were nearly 15,000 quarters short of the corresponding week of 1873. The aggregate of deliveries for seven and a half months of the cereal year, ending April 11, amounted to 7,190,805 quarters, requiring 4,809,105 before harvest. The shortening foreign supplies of the harvest of 1873, as shown by the startling growth of weekly deficiencies, give but poor prospect of meeting this demand in England, where farmers will have to purchase largely for bread for their own families. In France the pressure is still more severe, all the country markets showing a serious rise in prices. Late rains in the south of France have materially enhanced the prospect of the growing crop.

The London averages during the last week in May were 63 shillings per quarter on 1,322 quarters. Full half of the current arrivals from abroad were from New York. In Mark Lane, Essex, and Kent, white wheat brought 53s. to 67s. per quarter; ditto, red, 55s. to 63s.; Norfolk, Lincolnshire, and Yorkshire, 55s. to 61s. Of foreign wheats, Dantzig mixed, all grades, is quoted at 60s. to 70s.; Konigsberg, 59s. to 69s.; Rostock, 63s. to 69s.; Silesian red, 58s. to 60s.; ditto white, 63s. to 68s.; Pomeranian, Mecklenberg, and Nolenmark, red, 59s. to 62s.; Ghirea, 56s. to 60s.; Russian, hard, 54s. to 57s.; Saxouska, 60s. to 61s.; Danish and Holstein, red, 60s. to 62s.; American, 58s. to 62s.; Chilian, white, 65s.; Californian, 66s.; Australian, 64s. to 67s. In Liverpool American white brought 12s. 6d. to 13s. per cental; red winter and southern, 12s. 4d. to 12s. 6d.; No. 1 spring, 11s. 10d. to 12s.; No. 2 spring, 11s. 2d. to 11s. 9d.; Canadian white, 12s. 6d. to 12s. 10d.; ditto, red, 12s. to 12s. 2d.; California white, 12s. 7d. to 13s. 3d.; Chili, white, 12s. 2d. to 12s. 4d.; Australian, 13s. 6d. to 13s. 9d.; Spanish, white, 12s. to 12s. 2d.; Danubian, 7s. 6d. to 9s. 6d.; Egyptian, 10s. 8d. to 12s. 6d. In Paris French wheats brought 67s. to 73s. 6d. per quarter. At Rouen and Havre, California was quoted at 69s. 6d.; Chili, 68s.; American spring and Polish, 63s. 6d.

FLOUR.—The supply of flour in London at the opening of the last week of May was very moderate, the imports of the previous week being only 86,394 cwt. In Mark Lane the best town households brought 47s. to 54s. per 280 pounds; best country households, 44s. to 47s.; Norfolk and Suffolk, 38s. to 44s.; American, per barrel, all grades, 30s. to 34s. In Liverpool English and Irish superfines were quoted at 43s. 6d. to 50s. per 280 pounds; French, 55s. 6d. to 59s. 6d.; Spanish, 48s. 6d. to 52s.; Trieste and Hungarian, 65s. 6d. to 77s. 6d.; Chilian and California, 45s. 6d. to 51s. 6d.; American, Western State, per barrel, 25s. 6d. to 32s. 6d.; Baltimore and Philadelphia, 29s. 6d. to 31s. 6d.; Ohio, 29s. 6d. to 34s. 6d.; Canadian, 29s. 6d. to 36s. 6d. In Paris prices for consumption were strengthening, from 51s. 4d. to 54s. per 280 pounds.

MAIZE.—In Mark Lane, London, white is quoted at 41s. to 44s. per quarter; yellow at 37s. to 39s. In Liverpool American white brought from 39s. to 39s. 6d. per 480 pounds; ditto yellow, 37s. 6d.; Danubian, 38s. to 38s. 6d.; Galatz, 44s. 6d. to 45s.

